IDG .net

Don't count on an IT recovery in 2003.

Microsoft's former president touts Linux.

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MOBILE & WIRELESS

Tiny Gadgets, Huge Costs

The initial price of PDAs, BlackBerries and cell phones is low. But the hidden costs, such as airtime and help desk support, add up fast. This special report will help you identify and manage those costs, so you can take control of a potentially chaotic situation.

Stories begin on page 27.

ONLINE EXCLUSIVE

A road warrior's guide to cellular network coverage and "dead cell zones"

QuickLink 34472
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Bay Area Goes Wireless To Secure Bridges, Tunnels

Surveillance system uses video-over-IP tools to transmit images to California command post

BY BOB BREWIN

CRITICAL INFRASTRUCTURE

In a homeland security project, the California Department of Transportation is using multiple wireless systems to transmit surveillance data from seven bridges and three tunnels in the San Francisco Bay area to a command center in Oakland.

The department, known as Caltrans, has completed the first phase of the $20 million Bay Area Surveillance Enhancement project. BASE includes installation of up to 15 point-to-point wireless links spanning distances of as much as 16 miles each and transmitting data at 90M bit/sec., according to IT industry executives involved in the project. The wireless technology is being tied to 250 video cameras that will use video-over-IP technology to transmit images to the command center.

Caltrans activated the BASE system at two bridges and a tunnel in the South Bay area last month and plans to turn on the rest of the technology in February. Some details of the project are due to be announced this week by Sunnyvale, Calif.-based Proxim Corp., which is supplying all of the wireless equipment.

Greg Bayol, a spokesman for Caltrans, said the BASE sys-

Wireless, page 63

Unlicensed (5-GHz) and licensed (23- and 11 GHz) frequencies for wireless transmission of video images.

A combination of wireless subscriber units, base stations and point-to-point transmitters made by Proxim

Wireless security technologies such as Triple DES algorithms and the IPsec protocol

HP Is Homeland Merger Model

Union with Compaq offers guidance as feds merge 22 agencies

BY DAN VERTON
NEW YORK

White House officials are quietly studying this year's merger of Hewlett-Packard Co. and Compaq Computer Corp. in an effort to enhance their chances of succeeding in the mother of all mergers: the formation of the Department of Homeland Security.

But while the HP/Compaq merger and others like it in the private sector can offer important tips about how to manage IT integration on a massive scale, government officials warn that the ongoing homeland security reorganization and integration effort is unparalleled and will take years to complete.

Speaking last week at Infosecurity 2002 here, Robert Shepherd of the Office of Homeland Security said White House officials have met with HP executives as well as exec-

Homelond, page 63

Sprint Corp. CSO Robert [illegible] vendors [illegible] in security [illegible] software [illegible]

Mixed Reviews for .Net Licensing

Per-user option gets nod; Terminal Server change may be costly

BY CAROL SLIWA

Three licensing changes that Microsoft Corp. has announced for its upcoming Windows .Net Server 2003 operating system have drawn a mix of reactions, including concern among some corporate customers who fear they could see unexpected costs slip their way.

One change that's being applauded will let companies purchase client-access licenses on a per-user basis, in addition to the per-device option they currently have.

Another tweak that's viewed positively is the External Connector license that replaces

.Net Licensing, page 16

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One degree between data

Using .NET connected software
means a more perso

When software lets you use data to personalize customer connections, that's one degree of separation. The myriad of choices available to online consumers today is staggering. The personal service available at traditional businesses is largely absent online, and the company that can bring that feeling of familiarity back will reap huge rewards. Microsoft® solutions for Internet business provide the tools you need to build stronger relationships with your global network of customers and trading partners. Scalable user and content profiling allows you to target content and engage customers and partners with more personalized options, including customer-specific catalogs with custom pricing and product information in multiple currencies and languages.

You can aggregate profile data from multiple underlying data sources to leverage existing technology investments and enable richer profiling capabilities. With built-in business analytics, predict purchasing and browsing preferences by analyzing user behavior, all while delivering real-time recommendations. Plus, through direct support for XML-based data, companies can exchange catalog and order information with partners and integrate order fulfillment systems for seamless transactions. Find out how .NET connected software can help you connect with your customers better. Go to **microsoft.com/enterprise** Software for the Agile Business.

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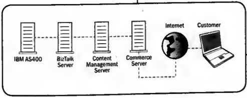
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ILLUSTRATIONS BY RICHARD LILLASH

KNOWLEDGE CENTER MOBILE & WIRELESS

Tiny Gadgets, Huge Costs

Wireless LANs, PDAs and cell phones are becoming part of the corporate mainstream, but IT shops have much to learn. This special report on wireless and mobile computing will help you integrate wireless LANs and keep a lid on the hidden costs of handheld devices.

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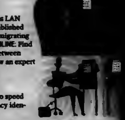

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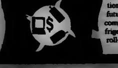

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AT DEADLINE

Bank Hands Off Networks to EDS

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But other carriers have no plans to adopt the practice

BY DAN VERTON
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So far, however, Sprint, which has operations in 18 states, stands alone in the telecommunications industry in even expressing a willingness to develop such a policy.

Other service providers contacted by *Computerworld* last week, including AT&T Corp. and Qwest Communications International Inc., said they have no such policy in place and no plans to develop one.

Although Sprint may be the first telecommunications company to get tough with the software industry on security matters, Fox said, it would be preferable if the government took more of a lead in demanding better security in software products.

"I don't think the private sector knows how to [talk tough to the software industry] yet," he said. Today, most companies make requests for improved security on an individual basis with their vendors, Fox said. As a result, the private sector isn't speaking with one voice.

The government, however, is beginning to do so. Starting July 1, all software companies that want to sell their products to the U.S. Department of Defense will need to have their products' security claims validated by a third party.

"Wait until the day when the government gets a handle on its own technical security," said Fox. "Then they're going to say, 'We're doing it, so you have to do it, too.' " ▶

Sprint Security Chief Defines Role

Robert Fox, vice president and chief security officer (CSO) at Sprint, last week spoke with *Computerworld*'s Dan Verton about [illegible] telecommunications provider. Excerpts [illegible] the discussion follow.

[illegible]

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[illegible]

It's all about technology. But security is more than technology. What you're seeing here is the difference between the all-encompassing CSO and the chief information security officer, who deals in the IT world. But what happens when the CIO tries to circumvent security policy and you work for him or her? And if you're also going to be in charge of traditional physical security, then the answer is again no.

What should the relationship be [illegible] CSO and the [illegible]

[illegible]

HP Demos Itanium-Based Superdome Server

Systems will allow users to run multiple operating systems on the same box

BY JAIKUMAR VIJAYAN

Hewlett-Packard Co.'s demonstration last week of an Itanium 2-based Superdome server takes the company a step closer to its long-term goal of moving users of its high-end systems to Intel Corp.'s processor technology.

[redacted]

But don't expect other major server vendors to follow suit anytime soon, analysts said. The relative lack of user interest in the 64-bit Intel processor means HP may find itself the lone standard-bearer for high-end commercial Itanium 2 servers for much of next year, they said.

HP showed a 28-processor Superdome server at last week's Gartner Inc. data center conference in Las Vegas. The demonstration featured a 20-processor partition running Microsoft Corp.'s Windows and SQL Server software, while two four-processor partitions ran HP-UX and Linux applications.

The Superdome is HP's highest-end commercial Unix server and is currently based on its PA-RISC processors. High-end models support up to 64 processors.

By demonstrating an Itanium-based Superdome, HP is following through on its previously stated intention of moving its high-end systems to standard Intel technology, said Vish Mulchand, a manager in HP's enterprise systems group.

HP said it will deliver its first Itanium-based Superdome in the first half of 2003.

Itanium-based Superdomes offer users an opportunity to consolidate multiple Windows servers on a single box, said Marty Paul, a senior systems analyst at Pitney Bowes Inc. in Stamford, Conn. But the company will wait until HP makes software partitioning technology available on Itanium servers before considering them, he added. Such technology has allowed Pitney Bowes to consolidate multiple small Unix servers on its current stable of PA-RISC-based Superdomes.

"We foresee a similar environment on Itanium-based Superdomes, but the date we were given for this by HP is very far off," he added.

"This is HP providing a proof point that it means what it says about Itanium," said Gordon Haff, an analyst at Illuminata Inc. in Nashua, N.H.

Limited Demand

Still, the systems are unlikely to generate much immediate demand from Unix or Windows users, analysts said. HP-UX users must recompile most of their applications to take advantage of the better performance promised by Itanium 2.

"Why would you want to do that, when there is an established PA-RISC platform that runs your current applications very well?" Haff said.

Moreover, continuing concerns about Windows scalability are likely to limit user enthusiasm for an Intel-based Superdome as a Windows server, Haff said. Unisys Corp., for instance, has been selling 32-processor Intel servers for close to two years now with only modest success.

[redacted]

"There is essentially very little demand today for Itanium on the Superdome. Still, Itanium is HP's strategic direction and therefore is important for users," Haff said.

HP's Itanium servers will eventually give the company some unique advantages, said Tony Iams, an analyst at D.H. Brown Associates Inc. in Port Chester, N.Y. HP's Itanium-centric strategy has put it well ahead of its rivals in terms of being able to offer an enterprise server capable of supporting multiple operating systems, Iams said. This could give HP an important edge as Itanium performance starts to mature and Windows starts scaling better, he said. The next version of Microsoft's .Net software, for instance, will come with full support for Itanium.

HP co-developed Itanium with Intel and has emerged as its most vocal booster. Unlike rivals that are waiting for more 64-bit Wintel software and user interest to materialize, HP has already committed to migrating its PA-RISC and Alpha-processor-based servers to Itanium in the next several years. ▶

MORE THIS ISSUE

HP will ship the next version of its Alpha processor next month. **PAGE 20.**

Sun Blade Servers to Feature N1 Technologies

First hardware to incorporate data center optimization

BY JAIKUMAR VIJAYAN

Users will get the first tangible fruits of Sun Microsystems Inc.'s N1 data center optimization strategy when the company introduces blade servers in early 2003.

The Sun blades will be the first Sun hardware to support a core N1 technology that allows users to pool a large number of processing, storage and network equipment and make it act like a single, shared resource. The technology will result in better system utilization and ease of management, according to Sun.

Sun's N1-enabled blade systems and future products will take advantage of virtualization technologies recently acquired in the company's purchase of Terraspring Inc. and Pirus Networks Inc., said Steve MacKay, a Sun vice president, at a media event last week.

Terraspring's software allows administrators to use browserlike interfaces to create and manage virtual server farms from a common pool of server resources. Pirus' software allows users to virtualize their storage equipment.

Sun will deliver a series of N1-enabled products based on those two technologies in the first half of 2003, according to MacKay. Sun Services is also developing N1 pilot programs using Terraspring and Pirus software at a small number of companies, officials said.

In the next phase of N1, which is expected to start sometime in the second half of 2003, Sun will roll out software that allows users to automatically allocate system resources to applications, based on service needs. In the final phase, slated to begin in 2004, Sun will deliver policy automation software, MacKay said.

Sun's decision to introduce N1 to users via its blade servers is sound, said Dwight Davis, an analyst at Summit Strategies Inc. in Boston.

Blade systems are basically complete servers on a single board. Several boards can be inserted into a single chassis where they share a common backplane, cooling fan and cabling, as well as external network and storage connections. As such, "blade servers are a microcosm of the data center and are in many ways an ideal proving ground for N1," Davis said.

For some users, Sun's growing emphasis on N1 is a mixed blessing. The Idaho National Engineering and Environmental Laboratory in Idaho Falls uses Sun equipment for commercial and scientific applications. Although N1 technologies can make a difference in the commercial application space, it's likely to be of limited value in the technical computing space, where raw performance is paramount, said Eric Greenwade, a fellow at the lab.

"The whole N1 philosophy is to ensure operability and reliability, while we are concerned about performance," Greenwade said. Sun should therefore pay attention to core processor and operating system technologies while rolling out N1, he said. ▶

Common Thread

SUN: N1

Goal: To deliver a range of data center optimization hardware, software and services.

Status: First components to become available in 2003 on blade servers.

HP: UTILITY DATA CENTER

Goal: To help companies aggregate, share and manage heterogeneous data center resources.

Status: Already shipping.

IBM: AUTONOMOUS COMPUTING

Goal: To deliver "self-healing" and "self-managing" data center technologies.

Status: Some components shipping; more on the way.

N1 BACKGROUND

For more on Sun's acquisition of Terraspring, visit our Web site:

QuickLink 34826
www.computerworld.com

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CSO ROBERT FOX: "Security is more than technology."

How is the office of the CSO organized at Sprint? At Sprint, there is no other security department. I have 275 people, 48 certified information systems security professionals. I have seven directors: directors of investigations, network security, vulnerability assessment, information security, physical security, operations, and business continuity and disaster recovery. So we are very technical and very traditional when it comes to physical and information security. The only thing I don't do is manage the day-to-day guards. That's done by administrative services.

We also provide a product called Managed Security Services for Sprint's domestic and international data business customers. So if there's a customer in London, Tokyo or Cleveland, and they need firewalls, intrusion detection, authentication or virus protection, we provide it. We do presales support, sales support, technical designs of security systems and implementations.

What is the most important factor in your success as a CSO? The bottom line is that the chairman and vice chairman of the company are two of my biggest supporters. If you don't have those guys, you have a real uphill battle. In my role, between the chairman and myself there's one person, the general counsel. It's not a complicated reporting structure.

The other factor has been putting the techies and the traditional security personnel in one organization so they both understand what the other is doing. The idea is not to make techies out of traditional security personnel [for physical and human protection], or to make traditional security personnel out of the techies.

Should the CSO report to the CIO? Yes and no. At the CIO level, it's all about technology. But security is more than technology. What you're seeing here is the difference between the all-encompassing CSO and the chief information security officer, who deals in the IT world. But what happens when the CIO tries to circumvent security policy and you work for him or her? And if you're also going to be in charge of traditional physical security, then the answer is again no.

What should the relationship be between the CSO and the user community? I hired a security awareness communications manager. The job is to communicate security throughout the corporation but also to put [the security department] in the right position and in the right light within the company. If you're going to start a security organization, you start with awareness, and most companies don't.

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DATA CENTER STRATEGIES

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Itanium-based Superdomes offer users an opportunity to consolidate multiple Windows servers on a single box, said Marty Paul, a senior systems analyst at Pitney Bowes Inc. in Stamford, Conn. But the company will wait until HP makes software partitioning technology available on Itanium servers before considering them, he added. Such technology has allowed Pitney Bowes to consolidate multiple small Unix servers on its current stable of PA-RISC-based Superdomes.

"We foresee a similar environment on Itanium-based Superdomes, but the date we were given for this by HP is very far off," he added.

"This is HP providing a proof point that it means what it says about Itanium," said Gordon Haff, an analyst at Illuminata Inc. in Nashua, N.H.

Limited Demand

Still, the systems are unlikely to generate much immediate demand from Unix or Windows users, analysts said. HP-UX users must recompile most of their applications to take advantage of the better performance promised by Itanium 2.

"Why would you want to do that, when there is an established PA-RISC platform that runs your current applications very well?" Haff said.

Moreover, continuing concerns about Windows scalability are likely to limit user enthusiasm for an Intel-based Superdome as a Windows server, Haff said. Unisys Corp., for instance, has been selling 32-processor Intel servers for close to two years now with only modest success.

"There is essentially very little demand today for Itanium on the Superdome. Still, Itanium is HP's strategic direction and therefore is important for users," Haff said.

HP's Itanium servers will eventually give the company some unique advantages, said Tony Iams, an analyst at D.H. Brown Associates Inc. in Port Chester, N.Y. HP's Itanium-centric strategy has put it well ahead of its rivals in terms of being able to offer an enterprise server capable of supporting multiple operating systems, Iams said. This could give HP an important edge as Itanium performance starts to mature and Windows starts scaling better, he said. The next version of Microsoft's .Net software, for instance, will come with full support for Itanium.

HP co-developed Itanium with Intel and has emerged as its most vocal booster. Unlike rivals that are waiting for more 64-bit Wintel software and user interest to materialize, HP has already committed to migrating its PA-RISC and Alpha-processor-based servers to Itanium in the next several years. ◆

WHAT'S NEXT

Will continue using Power4 RISC processors (and future generations) in its high-end servers. Will support Itanium processor where appropriate.

Will standardize on Itanium. Multiyear plan is to move users from Alpha, PA-RISC and MIPS technologies to standard Intel architecture.

Has no announced plans for Itanium. The company will continue with its Sun SPARC architecture.

MORE THIS ISSUE

HP will ship the next version of its Alpha processor next month. [illegible]

Sun Blade Servers to Feature N1 Technologies

First hardware to incorporate data center optimization

BY JAIKUMAR VIJAYAN

Users will get the first tangible fruits of Sun Microsystems Inc.'s N1 data center optimization strategy when the company introduces blade servers in early 2003.

The Sun blades will be the first Sun hardware to support a core N1 technology that allows users to pool a large number of processing, storage and network equipment and make it act like a single, shared resource. The technology will result in better system utilization and ease of management, according to Sun.

Sun's N1-enabled blade systems and future products will take advantage of virtualization technologies recently acquired in the company's purchase of Terraspring Inc. and Pirus Networks Inc., said Steve MacKay, a Sun vice president, at a media event last week.

Terraspring's software allows administrators to use browserlike interfaces to create and manage virtual server farms from a common pool of server resources. Pirus' software allows users to virtualize their storage equipment.

Sun will deliver a series of N1-enabled products based on those two technologies in the first half of 2003, according to MacKay. Sun Services is also developing N1 pilot programs using Terraspring and Pirus software at a small number of companies, officials said.

In the next phase of N1, which is expected to start sometime in the second half of 2003, Sun will roll out software that allows users to automatically allocate system resources to applications, based on service needs. In the final phase, slated to begin in 2004, Sun will deliver policy automation software, MacKay said.

Sun's decision to introduce N1 to users via its blade servers is sound, said Dwight Davis, an analyst at Summit Strategies Inc. in Boston.

Blade systems are basically complete servers on a single board. Several boards can be inserted into a single chassis where they share a common backplane, cooling fan and cabling, as well as external network and storage connections. As such, "blade servers are a microcosm of the data center and are in many ways an ideal proving ground for N1," Davis said.

For some users, Sun's growing emphasis on N1 is a mixed blessing. The Idaho National Engineering and Environmental Laboratory in Idaho Falls uses Sun equipment for commercial and scientific applications. Although N1 technologies can make a difference in the commercial application space, it's likely to be of limited value in the technical computing space, where raw performance is paramount, said Eric Greenwade, a fellow at the lab.

"The whole N1 philosophy is to ensure operability and reliability, while we are concerned about performance," Greenwade said. Sun should therefore pay attention to core processor and operating system technologies while rolling out N1, he said. ◆

Common Thread

SUN N1

Goal: To deliver a range of data center optimization hardware, software and services.

Status: First components to become available in 2003 on blade servers.

HP UTILITY DATA CENTER

Goal: To help companies aggregate, share and manage heterogeneous data center resources.

Status: Already shipping.

IBM AUTONOMOUS COMPUTING

Goal: To deliver "self-healing" and "self-managing" data center technologies.

Status: Some components shipping, more on the way.

N1 BACKGROUND

For more on Sun's acquisition of Terraspring, visit our Web site.

QuickLink 34826
www.computerworld.com

No Must-Have Technologies Seen Stimulating 2003 Budgets

CIOs and analysts say weak economy expected to keep IT spending tight

BY THOMAS HOFFMAN

UNLIKE THE post-Gulf War recession, when the promise of client/server computing helped spur new IT investments, there are no must-have technologies on the horizon that will stimulate spending next year, eight IT managers and analysts said last week.

"I don't see any technology out there that's causing companies to open up their wallets," said Howard Rubin, executive vice president at Meta Group Inc. in Stamford, Conn. Indeed, Meta Group is taking a rather dim view of IT spending, projecting a worldwide contraction of 3% to 5% next year compared with 2002.

That's only slightly more pessimistic than forecasts by other IT consulting and market research firms. Forrester Research Inc. in Cambridge, Mass., is pegging North American IT spending growth at just 1% next year, whereas IDC in Framingham, Mass., expects a global increase of 2% to 5%. Stamford-based Gartner Inc. was the most optimistic, predicting a 7% gain worldwide.

In addition, Merrill Lynch & Co. this month said that 62 out of 100 CIOs it surveyed in November indicated that their companies are trying to reduce IT spending as a percentage of total revenue. The 75 U.S. and 25 European companies currently devote an average of 5% of their revenues to IT, Merrill Lynch said. Only 22 of the respondents said they plan to increase IT spending-to-revenue ratios next year.

New technologies such as Web services aren't likely to lead to a widespread lift in IT spending next year, said John Puckett, former vice president and general manager of wireless and Internet technologies at Polaroid Corp.

"Any gains in spending will be the result of an improving economy and a rise in corporate profits," said Puckett, who is now an independent consultant in Foxboro, Mass. He added that he expects any new investments made next year to address "pain thresholds," such as IT infrastructure projects aimed at reducing costs or improving service levels for end users.

Still, analysts and IT managers identified a few technology areas that could have increases in spending. For example, the scheduled end next year of Microsoft Corp.'s support for Windows 98 and NT 4.0 will require many companies to upgrade their desktop systems, said John Jordan, a principal at Paris-based Cap Gemini Ernst & Young.

Security concerns may also help IT spending, said Roy Swackhamer, CIO at CNF Inc. in Portland, Ore., a $4.9 billion company that transports freight and manages supply chain networks for customers. "I recently read that attacks on corporate networks are up 20% this year, and I see it in our statistics as well," he said.

Swackhamer added that he also expects to see a general increase in investments for IT disaster recovery planning and customer-facing applications. But overall IT spending gains likely will be kept to a minimum "until the economy begins to move again," he said.

Christopher T. Wolff, vice president of architecture and standards at The Thomson Corp. in Eagan, Minn., said he thinks that companies "are beginning to see the second wave of the Internet" for business uses. Nevertheless, Wolff said he doesn't expect to see any significant humps in IT spending "until corporate profits can turn around to pay for those technologies." ◆

At-Risk Projects

[illegible]

[illegible]	[illegible]
[illegible]	[illegible]
ERP	42%
CRM	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]

[illegible]

Bill Would Force Companies to Disclose Thefts of Personal Data

Feinstein bill is based on new California law

BY PATRICK THIBODEAU
WASHINGTON

U.S. Sen. Diane Feinstein (D-Calif.) is circulating a draft of a bill that would require companies to tell customers when a hacker has gotten access to their information, something many companies usually don't disclose.

The Feinstein measure, called the Database Security Breach Notification Act, is modeled after a California law that takes effect next July requiring companies to notify customers if they believe a systems breach has led to the release of their personal information.

"What's clear is that identity theft is a major problem," said Scott Gerber, a spokesman for Feinstein. "We're looking at ways to address it, and this is one of the ways." But he said that no decision has been made yet on whether to introduce the bill next year.

The California law, as well as Feinstein's draft legislation, obligates firms to tell customers when an unauthorized person has accessed their name along with either their Social Security number, driver's license number, or credit or debit account numbers in combination with security or access codes.

The California law is "a potential public relations nightmare to any company," said Mark Rasch, senior vice president and chief security counsel at Omaha-based managed security services company Solutionary Inc. "They have to report not only actual compromises, but suspected compromises as well." Rasch is the former head of the Computer Crime Unit at the U.S. Department of Justice.

The Investment Company Institute in Washington, which represents almost 9,000 investment companies including firms based in California, opposed that state's law. Once someone has hacked into a system, "you don't know if they have acquired information or if they have just looked at information," said Tamara Salmon, counsel for the group. "Potentially, you will have to send out notices to a lot of people just because you don't know" whether the information has been recorded by the hacker, she said.

But Alan Paller, director of research at the Bethesda, Md.-based SANS Institute, said the California law is probably necessary because the kinds of crimes that are being committed. For example, a group in Russia and Ukraine has been acquiring customer data, extorting money to prevent its release and selling it anyway. Paller said he believes some companies are paying off the extortionists in an attempt to contain the damage. "You have to make the price of paying off the extortionists higher than the price of not paying them off, and this bill is the first thing that does that," he said.

The California law, recently signed by Gov. Gray Davis, was prompted by a breach earlier this year when hackers gained access to the state's Stephen P. Teale Data Center in Rancho Cordova [QuickLink 30260]. The hackers were able to access names, Social Security numbers and payroll information of 265,000 state employees.

"The trick for dealing with and overcoming IT theft is early detection," said Beth Givens, director of the Privacy Rights Clearinghouse in San Diego. "The earlier you know, the easier it is for you to stop the damage." ◆

Breach Laws

[illegible]

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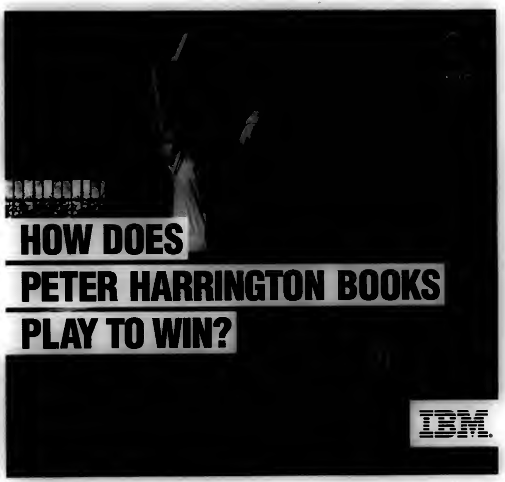
Breach Laws



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BRIEFS

User Tries to Get $100M From CSC

21st Century Insurance Group filed for arbitration in an attempt to recover more than $100 million in software development costs from Computer Sciences Corp. (CSC). The Woodland Hills, Calif.-based auto insurer previously has said that applications developed by CSC aren't working properly [QuickLink 34898]. El Segundo, Calif.-based CSC said it has complied with all of its contractual obligations.

Microsoft Warns Of Java Holes . . .

Microsoft Corp. warned that a pair of security flaws in the Java Virtual Machine code bundled with most versions of Windows and Internet Explorer could let attackers take control of systems or read files on PC and network disk drives. The company urged users to upgrade to a new version of the Java code, which was also designed to plug six lower-risk holes found in the software.

. . . And Ups Risk On Browser Flaws

Microsoft also increased its severity ratings on two vulnerabilities that were found previously in Internet Explorer to "critical," after being criticized by security researchers for downplaying the potential risks to users. One of the flaws was found this month, while the other was reported in November. After re-examining the holes, Microsoft said they could be exploited to take control of systems.

BearingPoint to Cut 700 Jobs in Europe

McLean, Va.-based IT consulting firm BearingPoint Inc. said it plans to lay off about 700 of the 2,800 workers at its operations in Germany, Austria and Switzerland. The move will cut its global workforce by 4%.

MARK HALL ▪ ON THE MARK

Security Tzar Slams Feature Frenzy . . .

. . . at the expense of "the science behind security." Yes, Ed Reed's Novell business card really does read "security tzar." He thinks the industry is **three to five years away from delivering systems that are truly secure,** especially for B2B Internet operations. Web services proponents may be the furthest from delivering secure systems, he argues, "because they presume a degree of interconnectedness of supply chain providers that includes levels of trust and confidence that are required in bilateral agreements." And those, he says, "simply do not scale in Web services." What's missing? Reed says it's **managing the liability and risk of transactions.** Until there are Web services that, for example, offer insurance companies secure tools so they can establish normal business processes for risk management, the effect of Web services in the supply chain will be minimal. So, are Web services for B2B a waste of IT's time? Nope. They will thrive behind the firewall in bilateral-type operations, much like RosettaNet today, says Novell's security tzar. Still, taking security advice from a tzar might have its own risks. Weren't **the tzars isolated from the real world and ultimately kidnapped and murdered** by rebellious hackers of a different sort? ▪ Until Reed's vision of security is achieved, how do you protect IT assets from the digital Trotskys and Lenins lurking on the Internet? With feature-laden products, of course. One to consider is the SafeWeb SEA Tsunami. The Linux-on-Intel hardware appliance starts at $9,995 and includes a firewall, encryption, integration of established LDAP directories for user authentication, a secure portal and automatic links to applications on your network. Lest you think this is more dangerous than secure, Emeryville, Calif.-based SafeWeb Inc. was **one of the CIA's venture capital investments back in 2000**. And it's already securing Web access for 55,000 U.S. Navy reservists around the world who use the Web to get medical claims data. Next quarter, SafeWeb will add an SSL acceleration card, and by the end of 2003, CEO Jon Chun boasts, the appliance will be fully HIPAA-compliant. ▪ **Intel Corp.'s big gamble is to persuade ISVs to stop writing code for its chips.** The microprocessor giant is evangelizing the need to abstract software development away from the chip itself, says Keith Uebele, principal strategist for Intel's software and solutions group. While at first glance that might seem, well, nutty to the rest of us, it makes sense to Uebele and his bosses. Let's face it, when your **market share approaches total world domination,** grabbing a bigger piece of the pie you already own isn't the primary objective. Rather, it's more frequent upgrade cycles. But as the wise folks at Intel know, if applications are written to take advantage of specific hardware capabilities, there's no incentive to upgrade. Hence, Uebele and his troops have been pushing for ISVs and big IT shops to write code in Java and, recently, in .Net. Intel promises to optimize its chips so the runtime libraries for those applications will run faster and deliver more features without programmers having to concern themselves with writing hooks for the CPUs. But Uebele acknowledges that the strategy isn't without risks. Chip makers such as AMD, Transmeta and even IBM potentially could play the same game a little better. **No wonder Intel brags about its paranoia.** That's part of its strategy. ▪ If you're worried about keeping track of a Web site full of product-catalog data, you were probably pleased with the release this week of Cardonet Product Master 5.0, the renamed 4.0 version of eCatalog Automation Platform. But **keep your eyes open in the first half of next year,** when Santa Clara, Calif.-based Cardonet Inc. unveils tighter integration with print systems, such as Adobe Acrobat, and a broader array of automatically assigning multivalue attributes to products in your online catalog. ▶

IBM Deals Another Setback To InfiniBand I/O Technology

Joins Microsoft, Intel in dropping development plans

BY LUCAS MEARIAN

The once-promising InfiniBand high-speed I/O interconnect technology took another big body blow last week, when IBM became the third key vendor to back away from the technology since June.

IBM disclosed that it's killing plans to develop standalone InfiniBand chips in favor of building custom devices that will incorporate the emerging technology and other functionality. The company was about two years into an InfiniBand development project but decided that there isn't enough of a market for a standalone chip, said Bill O'Leary, a spokesman for IBM's microelectronics division.

InfiniBand was designed to support high-speed server clustering and connections between systems and storage devices. But Intel Corp. stopped work on InfiniBand controller chips in June. Two months later, Microsoft Corp. dropped a plan to build InfiniBand management tools into its Windows .Net Server 2003 operating system [QuickLink 31869].

Continuing Support

All three vendors have said that they aren't completely abandoning InfiniBand. For example, in addition to IBM's plan to build the I/O technology into custom chips, the company's server and software groups "in a variety of ways are interested in supporting InfiniBand," O'Leary said.

But Bob Zimmerman, an analyst at Giga Information Group Inc. in Cambridge, Mass., said the market for InfiniBand technology is quickly shrinking.

"InfiniBand was a great promise that didn't happen," Zimmerman said, adding that Sunnyvale, Calif.-based Network Appliance Inc. is the only vendor he knows of that has shipped storage devices with built-in support for InfiniBand thus far.

"I suspect that IBM is looking to take the cream off the top of the profitable custom-made InfiniBand chip market, as opposed to mass-marketing standard chips," Zimmerman said, referring to the company's new development plans. ▶

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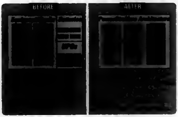

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“We’re getting
more __________,
more ________, and
a bigger __________.
Can the servers
handle that?”

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[illegible] performance [illegible] TP [illegible] software [illegible] Microsoft [illegible] store systems [illegible]

Scale up, scale out, or both [illegible] servers [illegible] ready [illegible] environment [illegible] 32 processors and 32 GB [illegible] environment, the platform [illegible] servers via network load balancing [illegible] Kit, webcasts, and other information [illegible] your infrastructure scalable enough [illegible] **microsoft.com/enterprise/scalability**

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President & [illegible] JetBlue Airways

Microsoft

Patent Office Starts Testing Paperless Processing System

$50M project includes new middleware, storage and document-scanning tools

BY LUCAS MEARIAN

THE U.S. PATENT and Trademark Office last week began testing an all-electronic patent and trademark-processing system that's expected to cost the agency more than $50 million to develop and is scheduled be fully implemented by late 2004.

The patent office, which is part of the U.S. Department of Commerce, estimated that the system will generate an annual return on investment of 30% during the first five years of use, due partly to technology upgrades aimed at eliminating more than a half-million paper files each year.

Last spring, the agency said it planned to be able to process all trademark applications electronically by next October and to have a similar process in place for patent filings a year later. But it didn't disclose details about the technology it will use to support the paperless processing.

CIO Doug Bourgeois last week said the patent office had started running the system in pilot mode to process requests for patents related to the arts. The test phase is due to continue until March, he said. If all goes according to plan, production deployment will begin next June.

The Patent and Trademark Office plans to use IBM's WebSphere MQ middleware tools as an enterprise application integration hub, which will use XML to connect new document-scanning and archiving software to the agency's back-end processing system, Bourgeois said.

Applications for patents and trademarks will be sent to the integration hub, which will convert the data into a format that can be understood by the homegrown back-end system. That system was originally developed for a Unisys Corp. mainframe and was migrated to five Hewlett-Packard Co. Unix servers last year.

The document-scanning system is a modified version of an application called ePhoenix, which was developed by the European Patent Office in Munich, Germany. The software runs on an Oracle9i database and will be used to capture images of patent and trademark applications as well as follow-up communications and filings, Bourgeois said.

"We'll have an image of every piece of paper we receive," he said. The data will be indexed, and Bourgeois noted that ePhoenix includes workflow capabilities that can route filings to the next person in the application-processing chain.

Room to Grow

To help deal with the increased amount of data that it will be collecting, the Patent and Trademark Office is installing an additional 90TB of Symmetrix disk arrays from EMC Corp. on top of the 210TB it already has configured on a storage-area network. Hopkinton, Mass.-based EMC plans to announce the new purchase this week.

The migration to full electronic processing will make the agency's data backup and disaster recovery capabilities more important than they are now, Bourgeois said. The patent office currently has a stand-alone data center and does only tape backups of its mission-critical data. If systems were to crash, it would take "a long time to get back to business," Bourgeois said.

Bob Cote, a patent litigator and trial lawyer at Orrick, Herrington & Sutcliffe LLP in New York, said a paperless system for processing patent applications is long overdue. For external users, the new technology should reduce the time it takes to submit filings, make it easier to access data and reduce errors in application processing, Cote said. ◗

No More Paper Chase

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[illegible] electronic document-scanning and archiving system that was developed by the European Patent Office.

Truste Says Licensing Changes Will Give Privacy Seal More Teeth

Automated system to check on Web sites' compliance

BY PATRICK THIBODEAU
WASHINGTON

Privacy certification organization Truste has toughened its licensing requirements and boosted its ability to monitor the privacy practices of Web sites that display what some critics have seen as a toothless seal of approval.

The licensing changes announced last week bar companies from changing a customer's privacy preferences for 12 months. They also tighten opt-out requirements to make it easier for customers to prevent the sharing of their personal information.

In addition, Truste has started using technology developed by Watchfire Corp. in Waltham, Mass., to monitor Web sites. The technology uses automated agents called Web crawlers to ensure that sites are in compliance with their stated privacy policies.

Harris Interactive Inc. in Rochester, N.Y., received a Truste seal earlier this year. Lynn Siverd, chief privacy officer and a vice president at the company, said she has no problem with automated compliance monitoring, provided it's a vehicle for constructive criticism and not for "slapping" a company.

Better Bite

Truste says companies with Web sites bearing its seal now must:

PROVIDE consumers with a choice to opt out before sharing their personal information. This closes a loophole for companies that cited marketing as their primary service and used that as a vehicle to share customer data with anyone.

ADHERE to user preferences for at least 12 months before making changes.

Indeed, Mike Weider, founder and chairman of Watchfire, said Web sites can involve so many people and departments that an employee could, for instance, unintentionally add a third-party cookie in violation of a firm's privacy policy. Watchfire's Web crawlers will look for those kinds of problems and alert Truste on a regular basis. Previously, Truste relied on annual reviews.

Truste and other privacy seal programs have faced criticism in recent years from those who feel that they have failed to ensure meaningful privacy protections. But with these changes and previous ones, Truste "has been steadily raising its standards," said Ari Schwartz, associate director for the Center for Democracy and Technology in Washington. Initially, Truste required companies displaying its seal only to abide by their own privacy policies, whatever those policies might be.

But that left companies free to treat customer information as they saw fit, Schwartz said. "I think companies that commit to this are raising the bar for the industry," he said, adding that the changes aren't a substitute for privacy legislation.

Fran Maier, executive director of San Francisco-based Truste, said the licensing changes, along with the monitoring effort, "are really sending the message that we take enforcement compliance seriously, that we have teeth."

Compliance Check

Corporate privacy officers say seal programs offer business value by providing a road map for examining privacy policies, establishing independent audits and boosting customer confidence.

Mel Peterson, chief privacy officer at Procter & Gamble Co. in Cincinnati, participates in the Arlington, Va.-based Better Business Bureau privacy seal program. Going through the process of applying for a seal is "a good way for a company to get up to speed quickly on what needs to be done" in privacy compliance, Peterson said. ◗

Patent Office Starts Testing Paperless Processing System

$50M project includes new middleware, storage and document-scanning tools

BY LUCAS MEARIAN

THE U.S. PATENT and Trademark Office last week began testing an all-electronic patent and trademark-processing system that's expected to cost the agency more than $50 million to develop and is scheduled be fully implemented by late 2004.

The patent office, which is part of the U.S. Department of Commerce, estimated that the system will generate an annual return on investment of 30% during the first five years of use, due partly to technology upgrades aimed at eliminating more than a half-million paper files each year.

Last spring, the agency said it planned to be able to process all trademark applications electronically by next October and to have a similar process in place for patent filings a year later. But it didn't disclose details about the technology it will use to support the paperless processing.

CIO Doug Bourgeois last week said the patent office had started running the system in pilot mode to process requests for patents related to the arts. The test phase is due to continue until March, be said. If all goes according to plan, production deployment will begin next June.

The Patent and Trademark Office plans to use IBM's WebSphere MQ middleware tools as an enterprise application integration hub, which will use XML to connect new document-scanning and archiving software to the agency's back-end processing system, Bourgeois said.

Applications for patents and trademarks will be sent to the integration hub, which will convert the data into a format that can be understood by the homegrown back-end system. That system was originally developed for a Unisys Corp. mainframe and was migrated to five Hewlett-Packard Co. Unix servers last year.

The document-scanning system is a modified version of an application called ePhoenix, which was developed by the European Patent Office in Munich, Germany. The software runs on an Oracle9i database and will be used to capture images of patent and trademark applications as well as follow-up communications and filings, Bourgeois said.

"We'll have an image of every piece of paper we receive," he said. The data will be indexed, and Bourgeois noted that ePhoenix includes workflow capabilities that can route filings to the next person in the application-processing chain.

Room to Grow

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BRIEFS

Payless Shoe Exec Named Sears CIO

Sears, Roebuck and Co. has named Gerald Kelly as its CIO, filling the spot vacated in May by Jerry Miller [QuickLink 30059]. Another executive had run the Hoffman Estates, Ill.-based retailer's IT operations on an interim basis since then. Kelly, 54, previously was senior vice president of logistics, information systems and technology at Payless ShoeSource Inc. in Topeka, Kan.

EDS Reduces Q4 Profit Forecast . . .

Electronic Data Systems Corp. cut its fourth-quarter earnings forecast as a result of the Chapter 11 bankruptcy filing by UAL Corp., the parent company of United Air Lines Inc. Plano, Texas-based EDS, which had already lowered its fourth-quarter projections in September, said that a $40 million write-down related to an aircraft leasing deal with United will reduce earnings by 5 cents per share.

. . . And Expands Weyerhaeuser Deal

EDS also said Weyerhaeuser Co. in Federal Way, Wash., has expanded a seven-year IT outsourcing deal signed in late 2000 to include the operations of Willamette Industries Inc., a company Weyerhaeuser bought in June. The contract expansion and the renewal of an outsourcing deal with an Australian utility company are worth a combined $240 million, EDS said.

Short Takes

SAP AG said it acquired full ownership of EMARO AG, a St. Leon-Rot, Germany-based electronic procurement service provider that was a joint venture between SAP and Deutsche Bank AG. . . . New York-based SCHOLASTIC INC. named Reg Maton as its CIO. Maton was CIO at Symbol Technologies Inc. in Holtsville, N.Y.

3Com Releases Software For Connecting Switches

XRN technology allows two network switches to be managed as a single unit

BY MATT HAMBLEN

MOVING FORWARD with the first phase of its switch-networking software initiative, 3Com Corp. last week began shipping tools that allow two of the company's core network switches to be managed as a single entity

The Expandable Resilient Networking (XRN) initiative was first announced in March, effectively bringing Santa Clara, Calif.-based 3Com back into the business of providing switching technology for corporate users after a two-year absence [QuickLink 28101].

3Com last week said the XRN software can be used to incrementally build a Layer 3 network backbone by linking its stackable switches — or fixed-configuration models, as 3Com calls them — into a virtual core-routing device.

The initial XRN Interconnect Kit can link two switches, said Shaun Paice, a product line manager at 3Com. By the end of next year, the software will be able to interconnect four 3Com switches, Paice said. A third version will link more than four of the devices, but no delivery timetable has been set for that release.

ViaSat Inc., a Carlsbad, Calif.-based satellite communications company, is evaluating the XRN technology along with 3Com's Switch 4060 device, which was released in June and is rated for a 56G bit/sec. switching capacity.

"Our return on investment could be much higher [than it was before] because we are going to see reduced network downtime and easier management," said Brent Barker, a networks systems security analyst at ViaSat. "If it pans out, it could be a big deal for us."

ViaSat has a 3,500-node network that's heavily dependent on 3Com gear. Barker said ViaSat will decide by February whether to extend XRN-equipped 4060 devices across the company's entire office campus. XRN could be used to link 4060s in three separate buildings, he added.

Nick Lippis, an analyst at Lippis Consulting in Hingham, Mass., said the XRN kit is unique in the LAN switching market. It should let users of 3Com's switches build more distributed core networks "without having to spend a lot more on chassis-based architectures" that are usually installed for heavy-duty applications, he said. XRN also is designed to eliminate single points of failure and provide management features such as network load balancing.

But Zeus Kerravala, an analyst at The Yankee Group in Boston, said the real proof of XRN's success will come if and when 3Com meets its second-phase rollout schedule. Adding support for linking up to four switches would give users more flexibility than they get with the initial XRN release, Kerravala said. ◗

Switch Connections

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Alcatel Targets 10 Gigabit Ethernet With New Switch

Models added at low and high ends

BY MATT HAMBLEN

Alcatel last week expanded the OmniSwitch product line that it announced in February, releasing a top-of-the-line 10 Gigabit Ethernet switch for use in core networks.

Paris-based Alcatel, which has switch development teams in California and Texas, also started shipping a series of edge networking switches called OmniSwitch 6000. Those devices and the high-end OmniSwitch 8000 complement the original 7000 series, which was designed to straddle the line between core and edge networking applications.

Lawrence Orans, an analyst at Gartner Inc., said the OmniSwitch 8000 is one of the few full-function 10 Gigabit Ethernet switches to be released thus far. Rival vendors such as Cisco Systems Inc. and Nortel Networks Ltd. have shipped 10 Gigabit Ethernet modules for their existing switches instead of developing complete devices, Orans said.

The 6000s are stackable switches that can be expanded as a company's network grows, according to Orans. He added that the devices also can function as virtual chassis switches, providing features such as carrier-class uptime and redundant power supplies at a much lower cost than actual chassis-based switches.

Texas A&M University has bought six of the 6000 models and is testing the switches prior to deploying them on its network to prioritize data traffic, said Willis Marti, the school's associate director of networking. He added that the university, which has 45,000 students plus 18,000 faculty and staff members, wants to be able to give priority to critical traffic, including real-time voice and video data.

Texas A&M installed some of the OmniSwitch 7000 devices in March for core switching uses, after evaluating Alcatel's switches as well as products from vendors such as Cisco and Nortel.

"Alcatel offers the idea of the same architecture with the edge switch, building router and core router," Marti noted. "A state university takes a long time to turn the ship, so we decided on the Alcatel architecture because it grows over time."

Alcatel's overall strategy is to sell the OmniSwitch products as part of IP telephony installations, since network availability "is going to be critical" to companies that are deploying such applications, Orans said.

"Alcatel is not a dominant player in the switching market, but they are well positioned for enterprises pursuing IP telephony," he added. ◗

PRODUCT DETAILS

OmniSwitch 8000 series

- Supports up to 384 Gigabit Ethernet ports and 16 10 Gigabit Ethernet wire rate ports
- Provides data switching speeds of up to 512G bit/sec.
- Pricing starts at **$40,995**

OmniSwitch 6000 series

- Lets users link up to eight switches in a loop with dual Gigabit Ethernet connections
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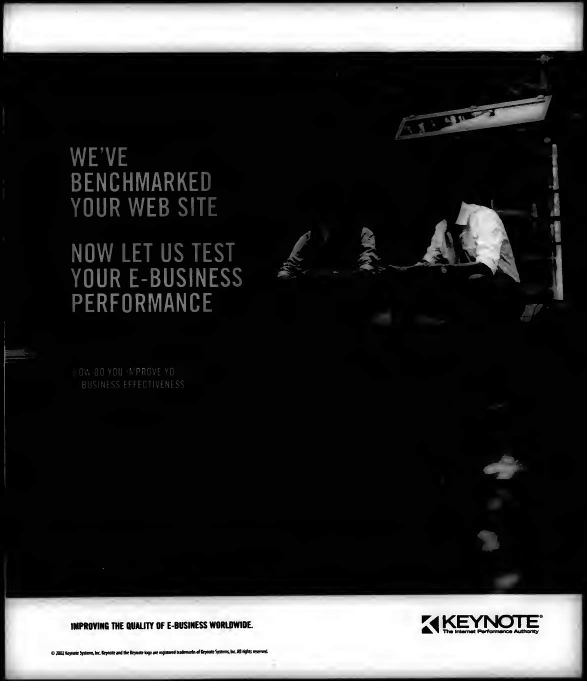
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.Net Licensing

the Internet Connector for Windows .Net Server 2003 and Terminal Server. Microsoft is essentially clarifying that with this license, companies can extend access to business partners via an extranet and to users via the Internet.

But a third licensing change is becoming a source of concern for some users of terminal services, which enable companies to let thin-client machines access applications running on their Windows servers.

Companies will be required to have Terminal Server access licenses for all client devices, no matter which version of Windows they're running. In the past, firms using the most current Windows client version got free access to terminal services on Windows servers.

Licensing Changes

New terms for Windows .Net Server 2003 and Windows .Net Server 2003 Terminal Server:

Per-user client-access licenses can be purchased, in addition to the existing per-device access license option. Companies can, if desired, buy a mix of per-user and per-device access licenses.

The External Connector license will replace the Internet Connector licensing option. This change clarifies that companies can extend server access to business partners via an extranet.

Terminal Server client-access licenses will be required, no matter which Windows client version is used. In the past, companies running the most current Windows client were granted access to Windows Terminal Services. Microsoft plans to grant Terminal Server access licenses to customers who either (1) have already purchased Windows XP Professional, (2) have their Windows desktop operating system under an Enterprise Agreement or Software Assurance plan or (3) purchase Windows XP Professional before Windows .Net Server 2003 ships.

Bob O'Brien, a group product manager in Microsoft's Windows server division, said the change moves Microsoft to a "more consistent model."

He noted that in the past, if a company upgraded to a new server operating system and didn't upgrade its client operating systems, it was required to buy terminal services client-access licenses.

"Customers could easily find themselves moving in and out of compliance with the licenses, which has created a great deal of frustration and confusion for those customers," O'Brien said.

Transition Aid

To help with the transition, Microsoft will give free Terminal Server access licenses to companies that have bought Windows XP Professional or will do so by the time Windows .Net Server 2003 ships in April.

Companies that have Windows desktop operating systems under an Enterprise Agreement or the Software Assurance maintenance plan will also receive such licenses, O'Brien said.

But not surprisingly, some companies are expected to fall through the cracks. Jim Prevo, CIO at Green Mountain Coffee Roaster Inc. in Waterbury, Vt., said his company currently pays for terminal services client-access licenses for its older clients and gets the licenses at no charge for its Windows 2000 PCs.

Green Mountain doesn't have an Enterprise Agreement and didn't sign up for Software Assurance, and Prevo said his company won't upgrade all of its clients to Windows XP just to get Terminal Server access licenses.

"This represents a price increase for us and will negatively impact our decisions regarding terminal service usage," Prevo said.

Raymond Leitz, director of technical services at AutoNation Inc. in Fort Lauderdale, Fla., said that if his company moves to Windows .Net Server 2003, as it has been planning to do, it could incur more than $250,000 in unanticipated expenses. That money would be spent on the necessary client-access licenses to enable some 10,000 users to access both the Windows .Net Server operating system and its accompanying terminal server, which would require separate client-access licenses.

The alternative is to escalate the timetable for its desktop operating system refresh, but that would cost even more, Leitz said. AutoNation's predominant operating system is Windows NT 4.0.

"Every year, there seems to be a new license program that Microsoft implements to make sure they have recurring revenue for desktop clients that haven't upgraded to the latest client operating system," Leitz said. "As these license program changes continue to occur outside of the annual corporate budget process timeline, it makes the budgeting process impossible to manage and frustrates everyone involved."

> **"Not only does Microsoft cost us a lot of money, but they take too much of our time with their pricing system.**
>
> **ROLAND SIN-CHAN,** IT MANAGER CAISSE D'EPARGNE

Ironically, that's the same sort of complaint Microsoft heard after announcing its Licensing 6.0 program in May 2001. That plan had been scheduled to take effect on Oct. 1, 2001, but Microsoft had to twice postpone the effective date of some of the more controversial provisions in the face of customer outrage.

Roland Sin-Chan, an IT manager at Caisse D'Epargne, a large Paris-based financial institution, said French customers are getting "fed up" with licensing changes, adding that if Microsoft continues to alter the rules, his firm may start to look at alternative products.

"Not only does Microsoft cost us a lot of money, but they take too much of our time with their pricing system," he said.

Leitz said he doesn't want to have to look to other products, but he has an exit strategy, should Microsoft's client-access "taxation" prove too high. He said his company could switch its Web portal to Apache running on Linux and turn to StarOffice deployed through its Citrix Systems Inc. software running on Unix.

"We are devising alternatives to lessen the pain if we have to," said Leitz.

Kurt Schlegel, an analyst at Meta Group Inc. in Stamford, Conn., referred to Microsoft's latest licensing changes as "two steps forward and one step back." He said the step back — the Terminal Server change — will be a big deal for companies not using Windows XP Professional. He said he's surprised that Microsoft didn't make the Terminal Server changes contingent on maintenance, to make Software Assurance and Enterprise Agreements more attractive and thus encourage renewals. ▶

Per-Device Option Still the Way to Go for Some Users

Microsoft's new per-user client-access licensing option is generally regarded as a positive change, but it won't be the best option for every company.

Per-device licenses will still make more sense for factories with workers who share a kiosk on the manufacturing floor and for call centers that have more than one employee using the same workstation, for instance.

"If you have more employees than you have devices, then you want to stick with the per-device model," noted Alvin Park, an analyst at Stamford, Conn.-based Gartner Inc.

National Semiconductor Corp., in contrast, has far more devices than it does employees, who access servers from the office, at home and on the road, said Bob Neuberger, infrastructure manager at the Santa Clara, Calif.-based company. National Semiconductor's employees access their applications from central servers running software from Citrix Systems, which charges customers based on the number of concurrent users.

Not surprisingly, Neuberger said his company prefers the per-user model. But even companies that expect to see benefits from that model may encounter challenges.

'Counting Devices Is Easier'

One IT manager at a large financial institution, who asked not to be identified, said the per-user option's helpfulness will depend on how easily the company can determine end-user access needs and track and manage the user vs. the device client-access licenses. "Counting devices is easier," he said.

Under the new Microsoft licensing plan, companies have the option of buying a mix of per-user and per-device access licenses, if that works out best.

"But you have to keep track of them," Park warned.

Pricing hasn't been announced, but the per-user and per-device options will be priced the same, according to Bob O'Brien, a group product manager in Microsoft's Windows server division. The licensing changes are due to take effect in April with the release of Windows .Net Server 2003, but beta testers may have spotted the new options earlier this month when Microsoft made available the second release candidate of its new server operating system.

– Carol Sliwa

Continued from page 1

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the Internet Connector for Windows .Net Server 2003 and Terminal Server. Microsoft is essentially clarifying that with this license, companies can extend access to business partners via an extranet and to users via the Internet.

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Companies will be required to have Terminal Server access licenses for all client devices, no matter which version of Windows they're running. In the past, firms using the most current Windows client version got free access to terminal services on Windows servers.

[redacted]

Bob O'Brien, a group product manager in Microsoft's Windows server division, said the change moves Microsoft to a "more consistent model."

He noted that in the past, if a company upgraded to a new server operating system and didn't upgrade its client operating systems, it was required to buy terminal services client-access licenses.

"Customers could easily find themselves moving in and out of compliance with the licenses, which has created a great deal of frustration and confusion for those customers," O'Brien said.

Transition Aid

To help with the transition, Microsoft will give free Terminal Server access licenses to companies that have bought Windows XP Professional or will do so by the time Windows .Net Server 2003 ships in April.

Companies that have Windows desktop operating systems under an Enterprise Agreement or the Software Assurance maintenance plan will also receive such licenses, O'Brien said.

But not surprisingly, some companies are expected to fall through the cracks. Jim Prevo, CIO at Green Mountain Coffee Roaster Inc. in Waterbury, Vt., said his company currently pays for terminal services client-access licenses for its older clients and gets the licenses at no charge for its Windows 2000 PCs.

Green Mountain doesn't have an Enterprise Agreement and didn't sign up for Software Assurance, and Prevo said his company won't upgrade all of its clients to Windows XP just to get Terminal Server access licenses.

"This represents a price increase for us and will negatively impact our decisions regarding terminal service usage," Prevo said.

Raymond Leitz, director of technical services at AutoNation Inc. in Fort Lauderdale, Fla., said that if his company moves to Windows .Net Server 2003, as it has been planning to do, it could incur more than $250,000 in unanticipated expenses. That money would be spent on the necessary client-access licenses to enable some 10,000 users to access both the Windows .Net Server operating system and its accompanying terminal server, which would require separate client-access licenses.

The alternative is to escalate the timetable for its desktop operating system refresh, but that would cost even more, Leitz said. AutoNation's predominant operating system is Windows NT 4.0.

"Every year, there seems to be a new license program that Microsoft implements to make sure they have recurring revenue for desktop clients that haven't upgraded to the latest client operating system," Leitz said. "As these license program changes continue to occur outside of the annual corporate budget process timeline, it makes the budgeting process impossible to manage and frustrates everyone involved."

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>
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Ironically, that's the same sort of complaint Microsoft heard after announcing its Licensing 6.0 program in May 2001. That plan had been scheduled to take effect on Oct. 1, 2001, but Microsoft had to twice postpone the effective date of some of the more controversial provisions in the face of customer outrage.

Roland Sin-Chan, an IT manager at Caisse D'Epargne, a large Paris-based financial institution, said French customers are getting "fed up" with licensing changes, adding that if Microsoft continues to alter the rules, his firm may start to look at alternative products.

"Not only does Microsoft cost us a lot of money, but they take too much of our time with their pricing system," he said.

Leitz said he doesn't want to have to look to other products, but he has an exit strategy, should Microsoft's client-access "taxation" prove too high. He said his company could switch its Web portal to Apache running on Linux and turn to StarOffice deployed through its Citrix Systems Inc. software running on Unix.

"We are devising alternatives to lessen the pain if we have to," said Leitz.

Kurt Schlegel, an analyst at Meta Group Inc. in Stamford, Conn., referred to Microsoft's latest licensing changes as "two steps forward and one step back." He said the step back — the Terminal Server change — will be a big deal for companies not using Windows XP Professional. He said he's surprised that Microsoft didn't make the Terminal Server changes contingent on maintenance, to make Software Assurance and Enterprise Agreements more attractive and thus encourage renewals. ▶

Per-Device Option Still the Way to Go for Some Users

Microsoft's new per-user client-access licensing option is generally regarded as a positive change, but it won't be the best option for every company.

Per-device licenses will still make more sense for factories with workers who share a kiosk on the manufacturing floor and for call centers that have more than one employee using the same workstation, for instance.

"If you have more employees than you have devices, then you want to stick with the per-device model," noted Alvin Park, an analyst at Stamford, Conn.-based Gartner Inc.

National Semiconductor Corp., in contrast, has far more devices than it does employees, who access servers from the office, at home and on the road, said Bob Neuberger, infrastructure manager at the Santa Clara, Calif.-based company. National Semiconductor's employees access their applications from central servers running software from Citrix Systems, which charges customers based on the number of concurrent users.

Not surprisingly, Neuberger said his company prefers the per-user model. But even companies that expect to see benefits from that model may encounter challenges.

'Counting Devices Is Easier'

One IT manager at a large financial institution, who asked not to be identified, said the per-user option's helpfulness will depend on how easily the company can determine end-user access needs and track and manage the user vs. the device client-access licenses. "Counting devices is easier," he said.

Under the new Microsoft licensing plan, companies have the option of buying a mix of per-user and per-device access licenses, if that works out best.

"But you have to keep track of them," Park warned.

Pricing hasn't been announced, but the per-user and per-device options will be priced the same, according to Bob O'Brien, a group product manager in Microsoft's Windows server division. The licensing changes are due to take effect in April with the release of Windows .Net Server 2003, but beta testers may have spotted the new options earlier this month when Microsoft made available the second release candidate of its new server operating system.

– Carol Sliwa

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License the full-featured Microsoft suite for power users who create complex spreadsheets or presentations with elaborate, animated builds. And then save money by deploying StarOffice software throughout the rest of your organization, possibly on a single server, for as little as $25 per user.

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Post-Microsoft, Quantum CEO Free to Tout Linux

BY LUCAS MEARIAN AND DON TENNANT

Rick Belluzzo *took over as CEO of Milpitas, Calif.-based storage vendor Quantum Corp. in September, four months after stepping down as president and chief operating officer of Microsoft Corp. Belluzzo spoke with* Computerworld *last week about his new company, where* Linux *isn't a dirty word.*

What was morale like when you showed up at Quantum, given the concurrent layoff of a third of the company's workforce? People were kind of tired and a bit stunned. Morale in our industry is quite low. I'm not sure we're any worse off than others — maybe we're better off. . . . We said we were going to break even this quarter and be profitable next quarter, and there's been a huge amount of energy to get there.

When you joined Quantum, you said that Bob Muglia, who heads Microsoft's storage business, had suggested that you get together. Did that ever happen? We are [meeting] next month. Bob and I have talked a couple times, and they're coming up with some ideas. I'm not sure where that's going to go. If we can find a way to work together, that would be great. The initiatives we're talking about all need to work well within Windows and SQL Server and a variety of environments that they certainly could help us with. But most of our [storage appliance] products have been Linux-based. It's a good operating system for those kinds of products.

So are you more of a believer in Linux now than you were when you were at Microsoft? I wasn't a believer in Linux at Microsoft; I couldn't be a believer at Microsoft. But Linux is clearly the biggest competitive challenge that Microsoft has ever faced. It's unlike anything before. There's not a [single] company behind it; it's very elusive, in a way. I don't think Linux is going to be successful as a desktop replacement. But Linux is going to surround new appliances and new segments.

Would you consider yourself a Linux advocate now? I consider myself an advocate of whatever allows us to achieve our goals most effectively. And today, for us, that certainly is Linux, because it's free, it has a good modular design, you can modify it to meet your needs. There is nothing else that can meet our needs like that.

Users appear to be more willing than they had been in the past to put mission-critical apps on Linux. Do you agree? In that case, it's not Linux that's the threat [to Microsoft], as much as the layer of software that's being built above that, like [IBM's] WebSphere and some of these other new tools that basically can interact with virtually any technology. In that environment, there's Linux and WebSphere vs. Microsoft, which is Windows from top to bottom.

So that's the debate: Is Windows going to grow into a broader application development environment, or is IBM going to be successful with something like WebSphere? Microsoft has a lot of work to do to make Windows as powerful and flexible as the combination of Linux and some of these other tools. ▶

QUANTUM LEAP

To read an expanded version of this interview, go to

QuickLink 35028
www.computerworld.com

Quantum Sets Road Map for Comeback Bid

Quantum last week laid out a four-year technology road map that's aimed at returning the storage vendor to profitability by next quarter and nearly doubling the capacity of its Super Digital Linear Tape (SDLT) line of tape drives by mid-2003.

CEO Rick Belluzzo said Quantum next summer plans to introduce an SDLT drive with a compressed data storage capacity of 600GB. The current model, the SDLT 320, can store 160GB of data in native format or 320GB of compressed data.

SDLT and a lower-end Value DLT line that Quantum acquired this quarter are its entries in the tape drive sweepstakes. Quantum is currently in a horse race with vendors of linear tape-open (LTO) drives, such as IBM, Hewlett-Packard Co. and Seagate Technology Inc.

The LTO vendors have sold about 250,000 drives worldwide thus far, compared with 150,000 SDLT devices, according to Freeman Reports, a storage market research firm in Ojai, Calif. But Bob Abraham, president of Freeman Reports, said that Quantum "has a very ambitious migration plan" for users of its older tape drives.

But as part of its effort to rebound from losses of $242.3 million during the past two quarters, Quantum will focus on more than tape backup, Belluzzo said. He cited partnerships with storage management software vendors and the company's new DX30 disk-based backup server as other key elements.

– Lucas Mearian

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HP Readies Last Alpha Upgrade

EV7 device set for release in AlphaServer systems next month

BY JAMES NICCOLAI

HEWLETT-PACKARD CO. next month plans to deliver a new version of its Alpha processor, an architectural upgrade that's designed to carry the CPU family until the company stops work on the chips in 2004.

HP had previously said it would ship the Alpha EV7 chip for use in its AlphaServer systems by the end of this year, putting the launch close to schedule. It will release one more Alpha device within 12 months or so before ending development work, according to Peter Blackmore, executive vice president of HP's enterprise systems group.

Speaking at a meeting with financial analysts this month, Blackmore said that HP expects its AlphaServer business to lose about $200 million during the fiscal year that will end next October. But he added that HP, which inherited the technology when it bought Compaq Computer Corp., can't abandon the installed base of Alpha users by killing the chip right away.

Reallocating Resources

HP eventually plans to shift all its high-end servers, including the Alpha-based machines and the ones that use its PA-RISC processors, to Intel Corp.'s 64-bit Itanium chips. When Alpha goes into maintenance mode in mid-2004, HP will be able to shift some of the funding now spent on it to Itanium-related server development work, Blackmore said.

With Alpha nearing the end of its life cycle, the EV7 is unlikely to attract many new corporate users, said Nathan Brookwood, an analyst at Insight 64 in Saratoga, Calif. But companies that have made big investments in developing Alpha-based applications "will require several years to complete the migration" to another server technology, Brookwood said.

Among other enhancements, the EV7 aims to improve bandwidth and reduce latency compared with earlier Alpha devices. The new design should boost performance by 35% to 55% over existing AlphaServer machines, allowing the chip to hold its own in the market for another one to two years, said Brad Day, an analyst at Giga Information Group Inc. in Cambridge, Mass.

The final planned Alpha processor, called the EV7-9, is a follow-on chip that will be produced using a more advanced manufacturing process in order to further boost performance, Blackmore said. After the EV7-9 is released, HP will continue to support users by providing bug fixes and upgrading operating systems to run on that device, although Blackmore didn't say how long that support would last.

Day called HP's Itanium strategy a gamble but said support for those chips is growing following Intel's release of its Itanium 2 processor in July. ◗

Niccolai is a reporter for the IDG News Service.

Actuate Broadens Reporting Tool, Plans to Add More IT Controls

BY CRAIG STEDMAN

Actuate Corp. this week plans to announce an upgrade of its spreadsheet-based reporting tools that's aimed at letting business users create their own reports. But the company is also developing separate software designed to give IT managers more control over the report-building process.

The current version of Actuate's e.Spreadsheet Designer technology, which generates reports that run inside Microsoft Excel spreadsheets, is used mainly by IT workers because it requires SQL programming skills and knowledge of XML. Actuate said the upgrade, due out next quarter, includes a simplified user interface that eliminates the need for manual coding.

However, some IT managers have told Actuate that they need to ensure that end users who are building reports can't access unauthorized data or write queries that will clog up systems. The follow-on product will provide such safeguards, said Michael Thoma, vice president of marketing strategy at Actuate in South San Francisco, Calif.

Some report-design functionality will be left out of that version of the software, Thoma said. Meanwhile, Actuate plans to add design templates that can be used to give reports a common look. The more controllable release could be ready "as soon as the next couple months," Thoma said.

Core Data Resources, a company in Amarillo, Texas, that processes ATM transactions, began using e.Spreadsheet last December and is beta-testing the upgraded version. Cy Comer, Core Data's Actuate administrator, said he created all of the ATM usage reports with the existing software. The upgrade should be easier to use for workers in accounting and other departments, he said.

Core Data doesn't plan to wait for the version with more controls, Comer said, adding that he runs all new reports on a test server to be sure that they work properly. But the promised templates and data-access constraints sound useful, he said. "If you just let anybody get to the data, that could be a problem," Comer noted.

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PRODUCT DETAILS

e.Spreadsheet Designer

Vendor Seeks High-Frequency Bandwidth for Wireless Links

FCC close to ruling on proposal aimed at fast point-to-point links

BY BOB BREWIN

The Federal Communications Commission this month is due to close a public comment period on a petition from a Hawaii-based technology vendor that wants to use a high-frequency spectrum band to support wireless communications at gigabit speeds.

Loea Corp. said its equipment was designed to deliver the same kind of throughput that fiber-optic networks do. The point-to-point technology now operates in the 71-to-76-GHz band under an experimental license, but the FCC has a rule pending that would open that spectrum to commercial uses. A final decision on the rule is expected next year, according to the FCC. Loea, a subsidiary of San Diego-based Trex Enterprises Corp., in September 2001 petitioned the agency for the right to use the high-frequency spectrum for its so-called virtual fiber technology.

Loea CEO Lou Slaughter said the Lihue, Hawaii-based company is positioning its system as a low-cost wireless method of connecting corporate users to public fiber-optic networks — what the telecommunications industry refers to as "the last mile." The technology could also be used as a backup to wired networks for disaster recovery purposes and to deliver wideband communications to geographically isolated areas, Slaughter said.

The system uses millimeter-wave transceivers to send "pencil beams" of data at speeds of up to 1.25G bit/sec., Slaughter said. If it gets FCC approval, Loea plans to sell the technology for less than $20,000, be added.

Technology Details

Mark Mohlman, IT director at the Hawaii Institute of Marine Biology on Coconut Island in Kane'ohe Bay, has been using a Loea link in beta-test mode since August to connect researchers and students to the University of Hawaii's campus on Oahu.

The marine institute, which is part of the university, operates a LAN that typically supports 50 to 60 users running data-intensive applications. Before the Loea technology was installed, data traffic between the institute and the Oahu campus or the Internet was bottlenecked by an 802.11 wireless connection that had throughput of only 2M bit/sec., Mohlman said.

The Loea equipment's transmissions tend to fade out in periods of rain, he noted. When that happens, the network automatically reverts to the 802.11 connection. Mohlman said he expects to mitigate the rain interference by having Loea replace the single 2.7-mi. link with a two-hop connection.

Rain attenuation is a potential problem for any wireless system that operates at such high frequencies, said Will Strauss, an analyst at Forward Concepts Co. in Tempe, Ariz. But that's compensated for by the fact that the 71-to-76-GHz band is an almost unused piece of spectrum, he added. ◗

Typhoon Strikes Guam, Puts IT Disaster Recovery Plans to Test

Power, communications problems afflict island

BY PATRICK THIBODEAU

A devastating typhoon that struck Guam last week is severely testing the contingency plans made by IT managers who work on the remote island in the Pacific Ocean.

Typhoon Pongsona, which reportedly had winds gusting to 180 miles per hour, left the U.S. territory without power or water and with limited telephone and Internet services. "It's the worst [typhoon] we've ever had — the damage here is incredible," said Wolf Hofer, IT manager at Deloitte & Touche LLP's Guam office.

Guam may be one of the toughest places in which to operate an IT network. Despite its year-round sun, the island is often in the direct path of some of world's most fearsome storms. Computer systems are typically housed in protected areas to help them withstand the storms, and technology backup planning is a fact of life there.

But the typhoon that struck Dec. 8 crippled services over which IT managers have little control. For example, electrical service could he out for some time. A smaller typhoon in July left some areas of the island without electricity for a month.

"There is power only where there are generators," said Rudy Villaverde, systems manager at the University of Guam's computer center. The school's computers are running but can't supply information to users, according to Villaverde. "Communications are almost dead," be said.

When Hofer returned to his office the day after the storm, his systems were operating on generator power as planned. WorldCom Inc., which provides some of the cable connections that link Guam to the outside world, was ready to go as soon as the local telephone service provider reactivated its lines, Hofer said.

But power is "going to be the big problem," he added. Until electricity is restored, the Deloitte & Touche office will depend on someone hauling in 45-gallon drums of diesel fuel to keep its generator running.

Tony Das, managing director at Startec+PCI, a cellular and Internet services provider on Guam, said he's also preparing for a long stretch without electricity. "I told my chief engineer here to make sure the generator is in good enough condition to last at least two months if necessary," Das said.

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Long Goodbye

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AMD

Study Ties Frugal IT Spending To Good Financial Performance

Top companies spend less than average on technology, consulting firm says

BY THOMAS HOFFMAN

PLAYING OFF the old axiom that it's not how much you spend but how well you spend it, an IT consulting firm said that an analysis of 7,500 companies has shown that the ones with the best-performing IT investments are often those that are the most frugal spenders.

But some IT managers and analysts questioned the validity of trying to draw correlations between the success of technology investments and IT spending as a percentage of a company's revenue, as the study by Orlando-based Alinean LLC does.

The yearlong study, which drew upon data gathered by financial information services firm Standard & Poor's, was released late last month. Alinean used common calculations, such as economic value-added measurements, to determine the financial performance of the 7,500 companies relative to their IT spending. The consulting firm said that it then conducted individual surveys of more than 200 companies.

Overall, the companies on average spent 3.7% of their revenues on IT last year, said Tom Pisello, Alinean's president and CEO. But the top 25 performers that Alinean analyzed invested a scant 0.8% of their revenues on technology, Pisello added.

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But Jon Carrow, director of global IT sourcing at Wyeth, a pharmaceuticals maker in Madison, N.J., said IT spending levels are often dependent on a company's business model and whether it's in growth mode or retrenching. "I don't think there is a 'right' number for that," Carrow said, referring to IT spending. "It's specific to each company."

"There are too many variables between companies to draw conclusions on IT spending," agreed Chip Gliedman, an analyst at Giga Information Group Inc. in Cambridge. For example, one company could spend more during the course of a year on marketing and cut back on its technology investments, "while another might spend more on IT," he said.

Pisello acknowledged that IT spending and the results it generates aren't always black and white. For example, he noted that technology vendors such as Dell Computer Corp., IBM and Lexington, Ky.-based Lexmark International Inc. all tend to be thrifty IT spenders. But Oracle Corp. spends considerably more on internal IT as a percentage of its revenue, Pisello said, "and that works better for its business model."

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For example, technology, telecommunications and steelmaking companies that have been hard-hit by the sluggish economy are generally the lowest-performing companies in Alinean's index, partly because their revenues have sagged and new spending on IT has been curbed, he said. ◆

IT Success Factors

The companies that are most successful at getting ROI from IT investments are likely to:

FOCUS on smaller projects with frequent milestones.

HAVE mature project management disciplines in place.

EMPHASIZE strategic planning and performance measurement.

FOSTER strong collaboration between IT and business units.

SOURCE: ALINEAN LLC, ORLANDO

Orlando Magic Shoots for Customer Satisfaction With CRM Applications

NBA team decides against software offered by league

BY MARC L. SONGINI

The Orlando Magic basketball team is the latest sports franchise to turn to customer relationship management (CRM) software to automate its interactions with fans. But the Magic went its own way on the technology, rather than relying on the National Basketball Association's chosen CRM tools.

FrontRange Solutions Inc., a CRM software vendor in Colorado Springs, last week announced that the Magic is wrapping up an installation of its GoldMine sales and marketing applications. The team plans to use GoldMine to automate the tracking of complaints and other communications with customers, said Julie Gory, fan relations and retail manager for the Magic.

The applications will also be used to monitor the progress of promotional campaigns and to ensure that food vendors and other suppliers comply with their commitments to the franchise, she said. The software was installed in August and is already live. All that remains to be done on the project is to input some earlier messages from customers, Gory noted.

The NBA, which has its headquarters in New York, last year installed CRM software developed by San Mateo, Calif.-based E.piphany Inc. and began offering its franchises access to those applications for a fee [QuickLink 20695].

But Gory said she found the E.piphany software too complex for her needs and added that using it would have been cost-prohibitive. The team instead decided to go with GoldMine, which cost less than a third of the E.piphany software to buy and install, according to Gory.

Steve Hellmuth, senior vice president of operations and technology for the NBA, said 17 of the league's 29 teams have signed up to use its E.piphany-based data warehouse and marketing campaign automation system.

"E.piphany is very simple and will work at whatever level you want to use it," Hellmuth said. Without providing specific cost details, he said the initial price for the teams is low. But, he added, "every team has their own strategy for selling tickets."

Before installing the CRM applications, Gory and her staff relied on manual procedures that involved the use of Microsoft Word and Excel documents. GoldMine, on the other hand, includes automated contact and project management capabilities and can consolidate information about customer inquiries into a central data repository.

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For example, Gory and other users can enter notes about issues raised by fans and then use the software to review the complaints. "We're a watchdog department that looks at things from a fan's perspective," she said, adding that keeping corporate customers and season-ticket holders happy is crucial in the highly competitive market for entertainment dollars.

The Magic may look to extend the CRM software into other business areas, such as marketing and corporate ticket sales, Gory said. ◆

GoldMine vs. E.piphany

GOLDMINE SALES AND MARKETING 2002:

- Was designed specifically for midsize users.
- Includes links to Microsoft's Outlook e-mail software.
- Runs on Windows NT 4.0 and Windows 2000 servers.

E.PIPHANY E.6:

- Is based on Java 2 Enterprise Edition technology.
- Includes built-in data analysis capabilities.
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Study Ties Frugal IT Spending To Good Financial Performance

Top companies spend less than average on technology, consulting firm says

BY THOMAS HOFFMAN

PLAYING OFF the old axiom that it's not how much you spend but how well you spend it, an IT consulting firm said that an analysis of 7,500 companies has shown that the ones with the best-performing IT investments are often those that are the most frugal spenders.

But some IT managers and analysts questioned the validity of trying to draw correlations between the success of technology investments and IT spending as a percentage of a company's revenue, as the study by Orlando-based Alinean LLC does.

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AMD
I don't want to work harder. I want to work smarter.
AMD

The AMD Athlon™ XP processor is fast. Very fast. And fortunately, speed is just the beginning. This processor is about more than just megahertz. Its unique design results in more work per clock tick, giving your computers a more efficient way to work, and your people, a smarter way to work. Think of it as true performance. It's just one more way AMD designs and builds processors with your IT needs in mind. We always have. We always will. To learn more about AMD's true performance, visit www.amd.com

PATRICIA KEEFE

The Price of Power

WHERE WAS IT? Fairly or not, that's a question that might get asked more and more in the finger-pointing fallout from an increasing number of business scandals and failures. It will certainly become a byproduct of a host of new regulations that promise to complicate corporate operations.

Whether it's megamergers that don't gel, corporate fraud, bankruptcy filings or the aftermath from what's looking like a disappointing holiday retail season, if the CIO is sitting in the company's inner circle, it's not going to be easy to stand on the edge of the fray, looking in, when the blame game starts.

I am not saying that CIOs are liable for fraud committed by other company executives. And they can't necessarily stop the runaway train of a CEO's idea. But having gained entrance to the strategic, decision-making body of the business, CIOs must proactively embrace the leadership role bestowed by that membership. And that means looking outside of IT and speaking up when something — anything that affects the business — doesn't look or sound right.

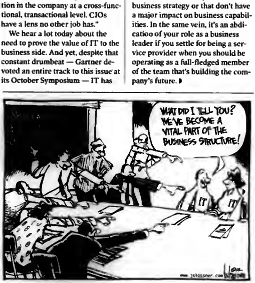
"The worst thing a CIO can do is to only speak up when it is absolutely painfully obvious that it is a tech conversation, or to become an order-taker," says Steve Schuckenbrock, chief operating officer at Feld Group. "Assume your role is as a senior executive of the business, that people want you to have an opinion on all topics of business, not just the technical implications. The business side is dying for this input."

No other company officer is as uniquely positioned to provide that insight as the CIO. IT gets an up-close-and-personal look on a regular basis into the needs, goals and strategies of the various departments that make up an organization. This is a one-of-a-kind perspective from which to consider strategy. As Schuckenbrock argues, "It's the only job that really has the opportunity to see every single transaction in the company at a cross-functional, transactional level. CIOs have a lens no other job has."

We hear a lot today about the need to prove the value of IT to the business side. And yet, despite that constant drumbeat — Gartner devoted an entire track to this issue at its October Symposium — IT has done a much better job than it gets credit for. In fact, the function of information processing, management and storage has become so vital to business strategy — and so intertwined with it — that today it seems inevitable that the bar will be raised for IT leadership.

For example, two weeks ago, five Wall Street firms received stiff fines for not keeping better e-mail records. Even if the decisions behind the botched records management were made by business executives, some people will wonder where the various CIOs were when the wrong decisions were made.

IT leadership involves much more than day-to-day computer and network operations. Many CIOs would consider it an abdication of responsibility for an IT executive to agree to execute a long list of projects that aren't clearly tied to the business strategy or that don't have a major impact on business capabilities. In the same vein, it's an abdication of your role as a business leader if you settle for being a service provider when you should be operating as a full-fledged member of the team that's building the company's future. ▶


WHAT DID I TELL YOU? WE'VE BECOME A VITAL PART OF THE BUSINESS STRUCTURE!
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PIMM FOX

To Be Moral, Know Thy Vendor

THERE'S NOTHING SO certain as moral ambiguity when it comes to the Internet and business, particularly when dealing with China. Two reports this month — one from the human rights group Amnesty International and the other by Harvard Law School — depict China as having the most restrictive stranglehold on Internet usage, regularly detaining individuals for downloading and distributing "subversive" information.

It's well known that surfing the Web in China comes with hazards, and that may not seem relevant to your work. But the recent reports came with hints that U.S. companies sell to China technology that assists in censorship.

The Amnesty International report alleges that companies such as Sun, Cisco and Microsoft have provided filtering technology to China.

And therein lies the ambiguity.

How can vendors that sell technology for blocking illegal or offensive sites prevent those tools from being used by repressive regimes to identify users who try to access banned Web sites, thereby suppressing human rights and freedom of expression?

They can't. But you can.

That's right. As the buyer and arbiter of technology for your company, you can and should be aware of the business practices of your vendors. And not just for issues related to China.

There are many intelligent arguments for the need to check personal morality at the office door. But they're less compelling amid the corporate scandals and abuse of trust that characterize much of U.S. business today.

The complex nature of deciding whether to do business with a government that routinely denies its citizens the basic rights of a democratic society isn't new. Business people have

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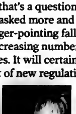

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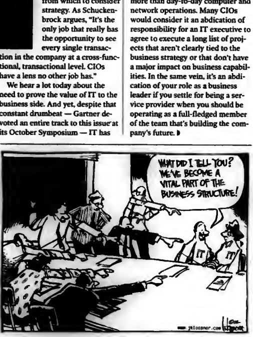
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MAKING THE CASE

INTEL IT USES TEST RESULTS, ROI TO GAIN BUSINESS SUPPORT FOR WLAN DEPLOYMENT

Wireless LANs without an ROI Wouldn't Fly

That was the stark reality for global chipmaker Intel Corporation's IT unit, which had helped the firm realize huge savings by driving from 20 percent to 65 percent the number of its 80,000-person workforce using notebook PCs.

Intel IT wanted to move closer to its goal of enabling anytime, anywhere computing by rolling out WLANs, which it was convinced would unlock their investment in high-performance notebooks by enabling workers to be significantly more productive. But putting a price tag on anticipated employee productivity gains—a soft benefit—was difficult.

Working together, Intel IT and Intel Finance tackled the challenge of measuring time savings and quantifying (in dollars) the productivity gains realized by early WLAN users and pilot test participants. Buoyed by those results, the two groups built a solid business case that demonstrates a healthy ROI for WLANs.

Subsequently, Intel IT used this ROI model to justify expanded WLAN deployment to over 80 wireless networks worldwide. CIOs and IT managers can use the same model to overcome a top barrier to widespread WLAN adoption—the difficulty of measuring time savings and linking productivity gains to a quantifiable ROI.

"Intel IT, with the help of Intel Finance, found that wireless LANs deliver positive ROI in a wide range of usage scenarios and user segments," says Intel Vice President and CIO Doug Busch. "A well-designed program of wireless deployment should produce this kind of ROI in most companies."

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Making the Case

Intel IT's plan was straightforward: assign dollar amounts to each component of the business case equation: **Productivity benefits – Startup costs – Sustaining costs (support, etc) = ROI,** and then do the math. The technology unit drew from surveys, interviews and monitoring of early WLAN users to help measure their reported time savings in hours per day.

The cross-functional team took the numbers from WLAN users in five segments: engineering/product management, manufacturing, sales, marketing and support, and then halved the figures to adjust for human judgement, and then took the results and halved them again to reflect actual productivity gains.

The team then calculated the value of each user's productivity gains by multiplying the average hourly "burden rate" (salary and benefits) by the number of workdays per year, 235. These conservative figures enabled the group to attach a dollar figure to the annual productivity gains from WLAN usage. To ensure that the business case was all-inclusive and thorough, Intel Finance took the productivity gains per user, per year, and factored in such costs as the time value of money, tax consequences and depreciation. The per-user, per-year productivity numbers ranged from $2,165 to $5,816.

Also included in the business case were estimated infrastructure startup costs for small, medium and large buildings, as well as sustaining costs, which typically consist of the burden rates associated with support personnel. Quantifying these costs requires that IT groups estimate what percent of their time will be devoted to the WLAN. The Intel team estimated the

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Tips for Making the Business Case for WLAN

time required per installation and multiplied it by the burden rate of the support personnel, then again factored in the time value of money, tax consequences and depreciation. One key piece of advice from Intel IT: It's far more productive to team with your finance unit from the start, and tap into its knowledge base when making a business case for a technology based on soft benefits, than to go it alone and meet only when presenting the case to cost-conscious senior managers.

"Working with your finance group on a wireless LAN pilot program is a great first step for IT managers who are either on the fence or are having trouble getting buy-in," explains the Intel Finance manager who assisted Intel IT. "We helped them get an understanding of what the gains are, and provided momentum."

ROI in Action

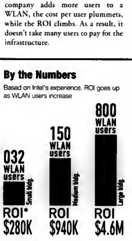
Based on Intel's calculations and experience over a three-year period, companies can see a healthy ROI on WLANs. Intel estimated a net present value ROI of $4.6 million for the large building scenario, $940,000 for a medium building deployment, and $280,000 for the small building installation. See chart at right.

This means that start-up and sustaining costs combined over three years still equal just one-tenth to one-twentieth of a conservative productivity benefit realized over the same period.

And the more WLAN users, the better. Intel IT points out that as a company adds more users to a WLAN, the cost per user plummets, while the ROI climbs. As a result, it doesn't take many users to pay for the infrastructure.

By the Numbers

Based on Intel's experience, ROI goes up as WLAN users increase



Source: Intel IT *Wireless LANs: Linking Productivity Gains to ROI*.
*ROI = net present value over three years.

Not If But When

While the Intel team made the business case by quantifying user productivity increases from the use of WLANs, there are many other ancillary benefits that users can reap. After the pilots, roughly 160 Intel WLAN users were surveyed with results asserting that:

- 68% of respondents indicate they use the WLAN continuously or most of the time during work hours;
- 62%, if given a choice between a wireless and a wired connection, choose wireless wherever possible;
- The average WLAN user saves a significant amount of time previously spent in meetings.

Asked to reflect on Intel IT's business case for WLANs and the early results from the company's ambitious ongoing global deployment program, CIO Busch is direct. "IT groups have what they need to change the way businesses consider wireless LAN deployments. The ROI is clearly there for WLAN. It's no longer a decision of whether to deploy, but rather how, when, and where." •

Want to Know More?

Get the complete white paper this article is based on along with other in-depth wireless networking guides and white papers at:

www.intel.com/go/wireless

These guides include:

- Wireless LANs: Linking Productivity Gains to ROI
- Five Steps to Deploying a Wireless LAN
- Wireless 802.11 Security in a Corporate Environment

intel.

had to weigh the sweetness of profits and free trade against the bitterness of supporting a cruel and repressive regime for a long time.

Sure, you can base your product buying decisions entirely on technological merit or best price, and you're likely to be praised for your impartiality. But can you in good conscience not take into account a vendor's business practices?

I'm not advocating that you become a crusader for the cause of liberty — though that's not a bad idea — but rather to make the overall behavior and corporate culture of your vendor *part* of the buying decision.

It's worth knowing that a particular vendor, say, is based in Bermuda to evade U.S. taxes. Whether you choose to do business with that company is something that you, your board and your shareholders can openly debate.

Something, by the way, that they can't do in China. ◗

RICHARD HUNTER

Database Project Is Dangerous

SCOTT McNEALY, CEO of Sun Microsystems, infuriated people, including me, when he said in January 2000, "You have zero privacy. Get over it."

But I'm not mad now. I'm just scared.

Vice Adm. John Poindexter, who was convicted by a jury as an Iran-Contra co-conspirator (the conviction was overturned on a technicality), is running a Pentagon program to search massive quantities of personal information of ordinary Americans, including financial transactions, phone and e-mail records, even medical and veterinary records. All the data gets run through analytic models; anything that matches the wrong kind of model gets pulled for special attention.

If this plan goes through, you have zero privacy. Want to get over it?

Well, why not? Lots of Americans think they've got nothing to hide. Why should they care? Here's why: The only controls on this program are established by the people running the surveillance. Effectively, then, there are none. By definition, the search models are secret. Nobody outside the program will ever know what the models are looking for. The rules can change, anytime, without discussion. That's an invitation for abuse.

Are you a gun owner? Terrorists use guns. If Poindexter's team decides that guns have to be tracked, the model gets tweaked, and the government will automatically learn about every gun and bullet you buy with your credit card, whether you registered it or not. Like to watch movies? Maybe you rented *The Battle of Algiers*. If the model flags it or some other flick for being radical, the government might look at everything you buy or every person you call on the phone, without the quaint formality of a search warrant. Think your ideas and beliefs are nobody else's business? If the government knows which magazines you read and which books, records and movies you buy or rent, then they'll know what you think. Marketers do similar kinds of affinity analysis every day, with far less data.

Will this help catch terrorists? Maybe. It's never been done. The outcome's unknown. But we already know the term for countries where everyone is under surveillance: *police states*. Iraq and North Korea fit the description. It's no coincidence that these countries are poor. It's hard to be creative when you're under constant surveillance.

Poindexter's plan makes glancing references to privacy. He seems to think that we can have both nationwide surveillance and liberty. He's wrong. Period. Surveillance is power, just like knowledge. If the government is peeking at every detail of our lives, without a court order, for any reason, then the government has absolute knowledge, meaning absolute power. Abuse isn't an accidental byproduct of that situation; it's the heart of it.

The Founding Fathers put the Fourth Amendment in the Constitution to make sure our government would never search a person or place for evidence unless the object of the search, the reason for the search and the location of the evidence was specified in advance. But the Founding Fathers had lived under the thumb of an oppressive military government. If more Americans had the same experience, we wouldn't waste a moment on schemes like this one.

This plan is dangerous. IT professionals should know that better than anyone; we know the technology and what it can do.

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Tips for Making the Business Case for WLAN

time required per installation and multiplied it by the burden rate of the support personnel, then again factored in the time value of money, tax consequences and depreciation. One key piece of advice from Intel IT: It's far more productive to team with your finance unit from the start, and tap into its knowledge base when making a business case for a technology based on soft benefits, than to go it alone and meet only when presenting the case to cost-conscious senior managers.

"Working with your finance group on a wireless LAN pilot program is a great first step for IT managers who are either on the fence or are having trouble getting buy-in," explains the Intel Finance manager who assisted Intel IT. "We helped them get an understanding of what the gains are, and provided momentum."

ROI in Action

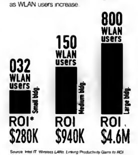
Based on Intel's calculations and experience over a three-year period, companies can see a healthy ROI on WLANs. Intel estimated a net present value ROI of $4.6 million for the large building scenario, $940,000 for a medium building deployment, and $280,000 for the small building installation. See chart at right.

This means that start-up and sustaining costs combined over three years still equal just one-tenth to one-twentieth of a conservative productivity benefit realized over the same period.

And the more WLAN users, the better. Intel IT points out that as a company adds more users to a WLAN, the cost per user plummets, while the ROI climbs. As a result, it doesn't take many users to pay for the infrastructure.

By the Numbers

Based on Intel's experience, ROI goes up as WLAN users increase.



Source: Intel IT *Wireless LANs: Linking Productivity Gains to ROI*
*ROI = net present value over three years

Not If But When

While the Intel team made the business case by quantifying user productivity increases from the use of WLANs, there are many other ancillary benefits that users can reap. After the pilots, roughly 160 Intel WLAN users were surveyed with results asserting that:

- 68% of respondents indicate they use the WLAN continuously or most of the time during work hours;
- 62%, if given a choice between a wireless and a wired connection, choose wireless wherever possible;
- The average WLAN user saves a significant amount of time previously spent in meetings.

Asked to reflect on Intel IT's business case for WLANs and the early results from the company's ambitious ongoing global deployment program, CIO Busch is direct. "IT groups have what they need to change the way businesses consider wireless LAN deployments. The ROI is clearly there for WLAN. It's no longer a decision of whether to deploy, but rather how, when, and where." •

Want to Know More?

Get the complete white paper this article is based on along with other in-depth wireless networking guides and white papers at:

www.intel.com/go/wireless

These guides include:

- Wireless LANs: Linking Productivity Gains to ROI
- Five Steps to Deploying a Wireless LAN
- Wireless 802.11 Security in a Corporate Environment

OPINION

had to weigh the sweetness of profits and free trade against the bitterness of supporting a cruel and repressive regime for a long time.

Sure, you can base your product buying decisions entirely on technological merit or best price, and you're likely to be praised for your impartiality. But can you in good conscience not take into account a vendor's business practices?

I'm not advocating that you become a crusader for the cause of liberty — though that's not a bad idea — but rather to make the overall behavior and corporate culture of your vendor *part* of the buying decision.

It's worth knowing that a particular vendor, say, is based in Bermuda to evade U.S. taxes. Whether you choose to do business with that company is something that you, your board and your shareholders can openly debate.

Something, by the way, that they can't do in China. ◆

RICHARD HUNTER

Database Project Is Dangerous

SCOTT McNEALY, CEO of Sun Microsystems, infuriated people, including me, when he said in January 2000, "You have zero privacy. Get over it."

But I'm not mad now. I'm just scared.

Vice Adm. John Poindexter, who was convicted by a jury as an Iran-Contra co-conspirator (the conviction was overturned on a technicality), is running a Pentagon program to search massive quantities of personal information of ordinary Americans, including financial transactions, phone and e-mail records, even medical and veterinary records. All the data gets run through analytic models; anything that matches the wrong kind of model gets pulled for special attention.

If this plan goes through, you have zero privacy. Want to get over it?

Well, why not? Lots of Americans think they've got nothing to hide. Why should they care? Here's why: The only controls on this program are established by the people running the surveillance. Effectively, then, there are none. By definition, the search models are secret. Nobody outside the program will ever know what the models are looking for. The rules can change, anytime, without discussion. That's an invitation for abuse.

Are you a gun owner? Terrorists use guns. If Poindexter's team decides that guns have to be tracked, the model gets tweaked, and the government will automatically learn about every gun and bullet you buy with your credit card, whether you registered it or not. Like to watch movies? Maybe you rented *The Battle of Algiers*. If the model flags it or some other flick for being radical, the government might look at everything you buy or every person you call on the phone, without the quaint formality of a search warrant. Think your ideas and beliefs are nobody else's business? If the government knows which magazines you read and which books, records and movies you buy or rent, then they'll know what you think. Marketers do similar kinds of affinity analysis every day, with far less data.

Will this help catch terrorists? Maybe. It's never been done. The outcome's unknown. But we already know the term for countries where everyone is under surveillance: *police states*. Iraq and North Korea fit the description. It's no coincidence that these countries are poor. It's hard to be creative when you're under constant surveillance.

Poindexter's plan makes glancing references to privacy. He seems to think that we can have both nationwide surveillance and liberty. He's wrong. Period. Surveillance is power, just like knowledge. If the government is peeking at every detail of our lives, without a court order, for any reason, then the government has absolute knowledge, meaning absolute power. Abuse isn't an accidental byproduct of that situation; it's the heart of it.

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12.16.02

Managing Cell Phone Costs

Wireless management companies can help companies dramatically cut cell phone costs through the use of optimization software. Otherwise, says John Hicks (left), director of unified messaging at Burlington Northern Santa Fe, cellular carriers will profit from your bad choices — whether users get too many minutes or not enough. Page 40

Connecting to Patients

A wireless LAN at George Washington University Hospital allows nurses to enter patient data directly into cart-mounted laptop computers. The goal is to improve patient care by battling the scourge of hospital paperwork. Page 46

EDITOR'S NOTE

JAWS DROP when Gartner analysts say that the total cost of ownership (TCO) of a handheld computer is about $3,000 per user, per year. IT managers are more likely to say $1,000.

The truth is probably somewhere in the middle. Gartner is counting hidden costs such as end-user training, support and lost productivity from glitches — things that the IT managers aren't measuring. On the other hand, Gartner may be throwing in the kitchen sink to make a provocative point and grab the attention of executives and the press.

It worked. The basic point remains that there are hidden costs, such as help desk calls, that IT managers should include in their mobile IT calculations.

In some ways, the TCO problem for mobile technology is even worse than Gartner says. We're turning into a three-device workforce: Everyone seems to need a laptop, handheld computer and cell phone to get the job done. Add up the TCO for those three devices (Gartner's figure would probably exceed $12,000 per user, per year), and it starts to look like the federal budget.

And yes, cell phones are now falling under the purview of IT and communications departments as another technology asset to manage. It won't be easy: There are 14,000 rate plans!

But as usual, companies are finding that the TCO of mobile technology can be brought under control with the time-tested IT disciplines of centralized management, billing scrutiny, standards — and just saying no to folks who don't really need the gadgets or wireless e-mail. ◗

Mitch Betts (mitch_betts@computerworld.com) is director of Computerworld's *Knowledge Centers.*

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More features and resources on this topic:

QuickLink k1000
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RICHARD LILLASH

Tiny Gadgets, Huge Costs

The price of handheld devices is low. It's the hidden costs that have to be managed.

The Story So Far

Wi-Fi and Bluetooth trace their roots back to Hollywood starlet Hedy Lamarr.

By Frank Hayes

THE UNLIKELY birthplace of modern mobile and wireless technology was a Hollywood dinner party in 1940, in a conversation between actress Hedy Lamarr — dubbed "the most beautiful girl in the world" — and film composer George Antheil. The topic? How to build a radio-controlled torpedo that couldn't be jammed by the Nazis.

Lamarr's first husband was a munitions maker, and she knew torpedoes. Her idea was to change frequencies rapidly to keep the radio signals to the torpedo from being jammed. Antheil's first major composition, *Ballet Mechanique*, used synchronized player pianos, and be suggested using paper rolls with holes punched in them to implement Lamarr's frequency-hopping idea.

In 1942, Lamarr and Antheil received a patent for the invention of spread-spectrum radio, which would eventually become the basis for wireless networking and many digital cellular telephone systems. But details of the invention were kept secret, even though the U.S. Navy decided not to use it. After all, there was a war going on.

World War II spurred another key element of mobile communications when, in 1940, the company that would later become Motorola Inc. developed the first lightweight, handheld two-way radio for the U.S. Army. The Motorola "handie-talkie" weighed only 5 lb. and had a range of one to three miles.

But it was after the war that wireless personal communications began to take off. In 1946, AT&T Corp. launched the first commercial mobile telephone service for private customers in St. Louis. But limited capacity meant that 30 years later, only 44,000 U.S. Bell system customers had mobile phones — with another 20,000 on five- to 10-year waiting lists.

That would soon change. AT&T researchers had started work on the cellular concept in 1947. In 1973, Motorola project manager Martin Cooper used the first working prototype of a handheld cellular telephone to call his rivals at Bell Labs. In 1978, the telephone company in Bahrain began operating the world's first commercial cellular telephone system for use by individuals. In 1983, the first U.S. commercial cellular service was launched in Chicago, and by 1988 there were 1.5 million U.S. cell phone subscribers.

Meanwhile, solid-state electronics had replaced the piano-roll technology of the original spread-spectrum invention, and by the early 1960s it was being used to keep radio communications secure from prying ears.

The same solid-state technology cut the cost of computing and made computer networks a necessity. And where wires couldn't go, a wireless network had to become a reality. In 1970, University of Hawaii professor Norman Abramson launched the first radio-based computer network, AlohaNet, which linked machines throughout the Hawaiian islands.

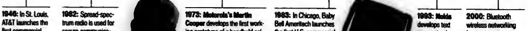
Digital technology also sparked handheld computing, which began with a flurry of heavy, battery-powered calculators in the early 1970s. In 1974, Hewlett-Packard Co. introduced its HP-65, the first programmable pocket calculator. In 1980, Sharp offered the first "pocket computer." A calculator that could be programmed in Basic, Sharp's PC-1211 gained popularity when RadioShack stores sold it as the RadioShack Pocket Computer.

In the 1990s, it all began to converge. In 1991, digital cellular phone networks using spread-spectrum technology began operating in Europe and the U.S. In 1993, Nokia Corp. developed text messaging between mobile phones. That same year, Apple Computer Inc. introduced its Newton MessagePad, a handheld computer that boasted handwriting recognition, an idea that took off three years later with the PalmPilot 1000.

In 1999, Apple launched AirPort, the first wireless networking product based on Wi-Fi — which uses spread-spectrum technology. So does Bluetooth, the wireless system developed by Ericsson Mobile Communications AB researcher Jaap Haartsen, which began appearing in phones and handhelds in 2000.

And as the boundaries between palmtops, handheld phones and wireless networks vanish, the challenge now isn't solving a technical problem, but managing the technology that grew from that Hollywood dinner party conversation.

And now, on with the story. . . . ▶



1940: Motorola develops the first lightweight, handheld two-way radio, the "handie-talkie."

1940: Actress Hedy Lamarr and composer George Antheil begin work on spread-spectrum technology. ▲

1946: In St. Louis, AT&T launches the first commercial mobile telephone service.

1962: Spread-spectrum radio is used for secure communications during the Cuban missile crisis.

1970: AlohaNet links computers throughout the Hawaiian islands, with the first radio-based computer network.

1973: Motorola's Martin Cooper develops the first working prototype of a handheld cellular telephone and then spends 10 years bringing it to market. ◆

1980: Sharp's PC-1211, a pocket calculator that can be programmed in Basic, is sold as the RadioShack Pocket Computer.

1983: In Chicago, Baby Bell Ameritech launches the first U.S. commercial cellular service.

1991: Digital cellular phone networks begin operating in Europe and the U.S.

1993: Nokia develops text messaging between mobile phones. ◆

1999: Apple's AirPort wireless networking product is the first to use Wi-Fi. ◆

2000: Bluetooth wireless networking begins to appear in mobile telephones and handheld computers.

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The High Cost Of Handhelds

A handheld may be only $300, but hidden costs can push the total cost of ownership to $3,000 per user, Gartner says. By Matt Hamblen

GARTNER INC. has a reputation for IT cost models that many IT managers find excessively high.

But Gartner's most recent numbers for the total cost of ownership (TCO) of handheld computers could take some IT managers' breath away.

The Stamford, Conn.-based research firm says the average handheld TCO is a whopping $3,000 per user per year, going up to $4,554 if you add a separate wireless modem. How can this be, given that many pocket-size personal digital assistants (PDA) cost as little as $300 off the shelf?

"What adds up are the number of line items, which many people don't think of on their own," says Gartner analyst Phillip Redman, referring to hidden costs such as training and IT support. It's "death by a thousand paper cuts," he says.

Redman acknowledges that his TCO calculations cause many IT managers to shake their heads in disbelief. But Gartner looks at 86 different kinds of costs in its distributed computing "chart of accounts," including hardware and software — both on the device and in the network — as well as training, IT support and network airtime for wireless implementations.

Even Gartner's calculations don't include lost revenue from glitches that result in downtime. If lost revenue was included, the TCO might soar even higher, because many top salespeople and CEOs are relying more heavily on handhelds and could lose out on a sale because of downtime.

But Gartner's estimate does include lost productivity, which is a calculation of the time an end user spends to figure out a technical problem as a portion of his salary. Of several IT managers *Computerworld* interviewed, none counted that sort of lost productivity in their own TCO calculations.

Gartner describes four general areas of cost: capital costs, including software and hardware; operations, including wireless air rates; administration; and end-user operations. To give an indication of how variable costs can be, Gartner says that a wireless "enhanced phone" — basically a wireless phone with Internet access — can cost $1,369 annually, with 60% going to capital costs. But a "communicator device" — a converged PDA and cell phone — has an annual TCO of $3,547, with 45% for capital costs.

TCO Tips

Suggestions for reducing the total cost of owning wireless and handheld devices:

- **Match an end user's needs to a device.** Some users don't need always-on wireless connections.
- **Use mobile management tools** for uploading software, monitoring improper use and controlling security.
- **Use a middleware gateway** that assists in profiling users.
- **Establish upfront training programs** that reduce support costs down the line.
- **Standardize** on infrastructure and hardware.
- **Limit the number** of service provider relationships.
- **Support end users** who really are mobile, not everyone.
- **Design by application, not by throughput.** In other words, don't design to the fastest network if a slower one will work for the application.

SOURCE: GARTNER INC., STAMFORD, CONN.

These handheld TCO figures actually compare favorably with Gartner's TCO figures for laptop and desktop PCs. The company says the TCO for a desktop running Windows 2000 is just above $5,000 per year, whereas the TCO for a fully functioning laptop running Windows 2000 is nearly $8,000 per year.

By that measure, handheld TCO seems cheap, especially if the device replaces a laptop. However, Gartner and other analyst firms say they fully expect many mobile workers to continue to need a laptop (which often uses a docking station to become a workstation) as well as a handheld and a cell phone or smart phone for several years to come.

That would put a mobile worker's technology cost at $12,000 annually.

Unforeseen Expenses

Analyst Tim Scannell at Shoreline Research in Quincy, Mass., says handhelds could cost an organization more than desktops do in some cases. If a company connects handhelds wirelessly to a back-end system such as a parts-inventory database, the overall costs could "escalate dramatically," he says.

"A handheld has a whole new set of peculiar problems that a notebook user might not deal with," he adds, such as unexpected training costs. For example, if handhelds replace paper and handwritten systems for field workers who have never used a laptop, then end-user training could be prolonged and expensive, Scannell says.

Despite the great promise of handheld deployments, most companies still have no set policies about standard machines or even whether the help desk should offer support. "Most user communities have no clue as to what handhelds cost [overall]," says Jack Gold, an analyst at Meta Group Inc. in Stamford, Conn.

"IT organizations are not planning effectively for PDAs and for getting data to pervasive devices, and

Continued on page 34

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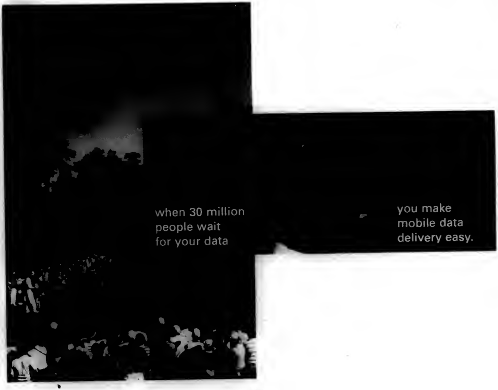

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It can't get you out of the Monday morning status meeting.

server. You avoid installation scripts, DLL registration, and having to restart your servers

3 No-Touch Deployment enables you to deploy rich Windows-based applications by copying files to a Web server, end users access the application by merely typing a URL into a Web browser

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Microsoft Visual Studio.net

Credit Suisse First Boston (CSFB) is using the No-Touch Deployment and the Windows Forms features in Visual Studio NET to eliminate DLL hell and enable instant deployment of new applications to over 17 000 desktops giving them all of the deployment benefits of a Web based solution coupled with the rich interface of an application for Windows

The 'Wireless Penalty'

When assessing the total costs of wireless mobile products, the more capable the device, the higher its costs. The more processing power it has, the more applications it can store and the higher the capital costs. Beyond typical costs for a mobile device — such as a PDA or a notebook, which may be mobile but not wireless — there's an additional cost element added for wireless connectivity that Gartner calls the "wireless penalty." For example, the TCO for a PDA is about $3,000. Adding a wireless modem with a TCO of $1,392 will bring that cost to $4,554. The TCO for an integrated wireless PDA is somewhat lower, at $4,392. Although capital costs for a wireless PDA are higher, support costs due to downtime are lower for a more dependable, integrated unit.

Total Cost of Ownership
(per user per year)

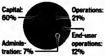
Enhanced phone (cell phone with Internet access) Example Nokia 6385	**$1,369**
Messenger (e-mail device) Example RIM BlackBerry	**$2,511**
Communicator (converged PDA/phone)	**$3,437**
Wireless PDA Example Handspring Treo 300	**$4,392**
PDA and modem	**$4,554**
Wireless notebook	**$11,062**

treo
Sprint

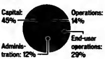
TCO Breakdown

An "enhanced phone" – a cell phone with Internet access – costs much less to support than a "communicator device," which is basically a converged PDA/phone. This is because an enhanced phone can't execute applications and relies on access to the network for information. A communicator, on the other hand, will run office applications such as word processing, e-mail and Internet access, so it costs more to support than an average cell phone.

Wireless enhanced phone
TCO: $1,369



Wireless communicator
TCO: $3,437



SOURCE: GARTNER INC., STAMFORD, CONN., MAY 2002

Continued from page 30

that's a substantial cost," Gold says. Although he says Gartner's TCO estimate of $3,000 to $4,000 is too high, Gold says it's easy to see how a wireless messaging device such as the BlackBerry from Research In Motion Ltd. (RIM) could cost at least $1,200 per device per year. And that really adds up to a substantial cost for a large deployment of hundreds or thousands of BlackBerries.

The TCO Guessing Game

Several IT managers who have deployed handheld devices say their TCO costs are far below Gartner's figure of $3,000 per user per year, but most of the IT managers also say they don't enumerate costs beyond hardware, software and wireless airtime.

For Thomson Financial in New York, handheld costs are fixed at $1,000 per year per user under an outsourcing contract, says Greg Agahigian, director of enterprise systems.

Thomson gets 100 handhelds and support services from Good Technology Inc. in Sunnyvale, Calif. The agreement includes client software, help desk support and back-end maintenance. "That's very affordable for an e-mail machine" that's also used for calendaring and contacts, Agahigian says.

At ADC Telecommunications Inc. in Eden Prairie, Minn., salespeople and IT staffers have been using 250 Samsung SPH-I300 smart phones since May, says CIO Kamalesh Dwivedi. He says Gartner's handheld TCO numbers are too high and estimates ADC's annual costs per user at only $400 — that's $300 for hardware, $40 for training and $60 for deployment and software costs.

Dwivedi won't disclose how much he's paying for airtime, but he says users were running up costs by making cell phone calls prior to receiving the smart phones anyway. And by pooling airtime minutes, he has cut those costs by 30%.

Plus, Dwivedi lowered deployment and help desk costs by paying for the services of four different outsourcers. "Instead of waiting another two years for support-software maturity, we found all these companies," he says.

Salespeople get e-mail, calendaring and contacts via Microsoft Exchange and can get a customer's order status or other information through an ADC server, using software from Air2Web Inc. in Atlanta.

Siebel Systems Inc. in San Mateo, Calif., plans to give more than 2,000 handhelds to its workers over the next 12 months and has already deployed some RIM BlackBerries, says CIO Mark Sunday.

Looking at his costs so far, Sunday says, "I don't know how you'd come up with the $3,000 to $4,000 [figures] of Gartner." But he does agree that handheld costs could be higher than many CIOs think.

"My expectation is that for the average enterprise, this cost is a nightmare, and IT organizations haven't [considered those costs] and don't have a good process in place," he says. ■

PDA MANAGEMENT

Palm Central: An Ohio medical center has centralized management of 1,600 Palm handheld computers for doctors – and wouldn't have it any other way. **QuickLink 34330**

Get Control: New mobile management tools extend the management capabilities available to desktops out to handhelds.
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That means systems are humming
and data is flowing.
if not, I have to fix it.
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MARK HALL

Compatibility Clashes

WHEN I PUBLISHED my first column about LANs in 1982, I suggested that it would take less than 10 years for virtually all enterprise computers to be hitched to local-area networks. Not a bad forecast, except I predicted that they would be linked via CATV coaxial cable and not Ethernet. Oops.

Now two decades older, if not wiser, I ask you to consider my latest prediction. 10 years from now, you won't be wiring anything new outside your data center. Forget about pulling more Cat 5 copper wire or fiber-optic cable. Every new digital device that computes in the enterprise will be wirelessly connected.

The benefits will be great, but you can be sure this wireless world will have its share of headaches. The early adopters among you who are buying laptops and PDAs equipped with wireless adapters and installing access points for your users have undoubtedly already run headfirst into the biggest problem. interoperability clashes similar to those experienced 20 years ago by network pioneers.

Sure, there are standards, such as 802.11a and b and g, and don't forget the work on the emerging very high-performance 802.15.3 standard. You can count on many more to follow.

And the industry-sponsored Wi-Ft Alliance in Mountain View, Calif., is working mightily to certify wireless device compatibility among the hundreds of vendors cranking out thousands of products. The Wi-Fi Alliance has certified more than 500 units in its five labs around the world — everything from access points to keyboards, mice and digital cameras. The queues for Wi-Fi certification are growing longer, indicating a bright spot of market growth in the depressed IT industry.

But here's the snag: Some products will surely fail to achieve Wi-Fi compliance, and those vendors aren't likely to pull their products from the market. They'll simply send the devices back to engineering to meet the interoperability standards while generating revenue from the noncompliant ones.

Even the Wi-Fi Alliance seal of approval goes just part of the way. The association certifies only the bottom two layers of the International Standards Organization's (ISO) hoary Open Systems Interconnection (OSI) protocol stack. After that, you're on your own.

Going back to 1982 once again, when the Ethernet compatibility issues were resolved at Layers 1 (physical) and 2 (data link), the real interoperability issues for IT managers hit hard at the upper layers. The fact that the ISO/OSI network model even needs to be mentioned underscores the fragile nature of interoperability in today's wireless systems.

For some IT managers, these interoperability headaches have already begun. Those of you who rushed to install 802.11a units already know that the next-generation 802.11b devices speak an entirely different language.

But none of this should suggest that you halt your wireless projects. Quite the contrary. Wireless networks are often the right technology to improve worker productivity and gain a competitive advantage.

Ira Brodsky, who has followed the wireless radio-frequency phenomenon for about 25 years as president of Datacomm Research Co. in Chesterfield, Mo., says that while not a completely immature technology, wireless LANs need more attention from senior IT managers than do their boring, mature wired counterparts.

"When people create a specification that creates a standard, you're still a long way from interoperability," says Brodsky.

So how do you ease the pain? Brodsky suggests that companies embarking on serious wireless projects pick a single large vendor that complies with standards and has compatibility certification from the likes of the Wi-Fi Alliance. The next step is to make sure that their users' second- and third-tier wireless suppliers adhere to that main vendor's implementation.

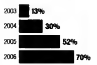
This strategy will be particularly useful when you implement the absolutely essential WLAN security policies. WLAN vendors could employ security differently. For example, some may add more aggressive levels of user authentication, such as challenge-response mechanisms that require users to reauthenticate themselves in the middle of a session. Others may not. Mixing the two could prove to be more than annoying for end users.

So, while you may not be wiring anything new outside your data center 10 years from now, you will be dealing with some of the same issues that you grapple with today — keeping your users happy while making everything work together. ▶

SNAPSHOTS

Turning Blue

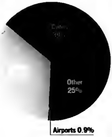
The percentage of U.S. handheld devices that will be Bluetooth-enabled:



SOURCE: IDC, FRAMINGHAM, MASS., OCTOBER 2002

Hot Spot Locations

Publicly available wireless LAN "hot spots" will be found in more than 18,000 U.S. locations by 2004.



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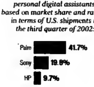
The top five vendors of personal digital assistants, based on market share and ranked in terms of U.S. shipments in the third quarter of 2002:



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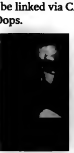

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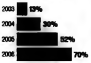

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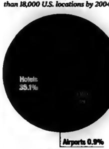

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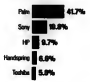

SOURCE: DATAQUEST INC., SAN JOSE, OCTOBER 2002

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*Monthly payment based on 46-month QuickLoan at 12.99% interest rate for qualified Small Business customers. Your interest rate and monthly payment may be same or higher, depending on your creditworthiness. Minimum transaction size of $500 required. Maximum aggregate financed amount not to exceed $25,000. Under 60 Days Same-As-Cash QuickLoan, interest accrues during first 60 days after QuickLoan Commencement Date (which is two days after product ships) if balance not paid within these 60 days. OFFER VARIES BY CREDITWORTHINESS OF CUSTOMER AS DETERMINED BY LENDER. Taxes, fees and shipping charges are extra and may vary. Not valid on past orders or financing. QuickLoan arranged by CIT Bank to Small Business customers with approved credit. **This term indicates compliance with IEEE standard 802.3ab for Gigabit Ethernet, and does not connote actual operating speed of 1 Gb/sec. For high speed transmission, connection to a Gigabit Ethernet server and network infrastructure is required. *Technician, replacement part or unit (depending on service contract) will be dispatched if necessary following phone-based troubleshooting. Service may be provided by third-party provider. Subject to parts availability, geographical restrictions and terms of service contract. Service timing dependent upon time of day call placed to Dell. Replacements may be refurbished. U.S. only. Dell, the stylized E logo, E-VALUE, and PowerConnect are trademarks of Dell Computer Corporation. ©2002 Dell Computer Corporation. All rights reserved.

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The Almanac

An eclectic collection of research and resources. By Mitch Betts

A 5GB Hard Drive Debuts for Mobile Devices

Need to carry a few thousand graphics, audio or text files on the road? Tokyo-based Toshiba Corp. recently unveiled a portable 5GB hard disk drive with Bluetooth wireless technology that can be accessed from any Bluetooth device. The HopBit went on sale Nov. 1 in Japan for about $410, but there are no immediate plans to sell it elsewhere.

— *Martyn Williams, IDG News Service*

Speakeasy Provides Device Interoperability

Palo Alto Research Center Inc. (PARC) has developed a collection of protocols, called Speakeasy, to allow end users to make a wide variety of wireless devices interact with one another in ad hoc ways, without writing any code.

Each device would need a Speakeasy virtual machine inside to make it work, but the result would be a powerful tool for on-the-go corporate employees, says Richard Burton, manager of PARC's distributed systems unit in Palo Alto, Calif.

For example, a sales executive with a wireless personal digital assistant (PDA) could walk into conference room, and the PDA in "discovery mode" would list all of the devices available, including the PowerPoint projector. Using a Speakeasy interface, the user could drag and drop his PowerPoint presentation on the projector and then download software making the PDA act as the projector's remote control.

Burton likens Speakeasy to HTTP, the protocol that enables connections and data transfers among disparate computers on the Web. Speakeasy provides the same sort of basic interoperability for wireless devices. For example, you could walk up to a printer with your PDA and download the printer driver needed to print out a complex document from your PDA.

PARC is now on its third-generation prototype of Speakeasy and is looking for corporate partners.

Patent Watch

- **Audio feedback when pressing wireless device keypads.** This invention triggers a distinctive sound — not just a monotone beep — that identifies which key was pressed on a cellular phone, which could be useful when working in the dark or driving. For example, pressing the 2 key could generate two chimes or a synthesized voice saying "two." — *U.S. Patent No. 6,477,390, issued Nov. 5* **INVENTORS:** Arnold J. Gum and Jason B. Kenagy at Qualcomm Inc. in San Diego, Calif.

Research Roundup

- Major wireless carriers are facing a market shakeout in the next 12 months, driven by market saturation and huge debt loads, says Meta Group Inc. in Stamford, Conn. The wireless voice market is still growing in China, but Europe, North America and South America are reaching saturation, with most new subscribers using prepaid plans or viewed as poor credit risks.
- The average time to resolve a wireless user's call to the IT help desk is 3.63 hours, compared with 3.16 hours to resolve a wired user's call, according to a survey conduced by *CIO* magazine.
- Don't underestimate the human factor in mobile deployments, says Carl Zetie, an analyst at Giga Information Group Inc. in Cambridge, Mass. It's easy for remote users to sabotage a project, so consider work processes, culture and support issues. Minimize resistance by establishing incentives for adoption and eliminate barriers to adoption, he says.
- Dataquest Inc. in San Jose says tablet PCs will represent only 1% of worldwide notebook shipments next year.

What Users Want

Corporate customers say that wide geographic coverage is much more important than pricing for wireless carrier services.

MOST IMPORTANT SELECTION FACTORS	
Complete regional or national coverage	73.5%
Service pricing	25.3%
International roaming/coverage	8.2%
Wireless Internet and data services	8.1%
Handset selection and price	2.0%

BASE: SURVEY OF 122 ENTERPRISE WIRELESS CUSTOMERS; MULTIPLE RESPONSES ALLOWED

SOURCE: GARTNER INC., STAMFORD, CONN., MAY 2002

Wireless E-Mail: Really Necessary?

Watch out for the status seekers who want wireless e-mail service to look important but don't really need it, says Peter Lowher, an analyst at Stamford, Conn.-based Gartner Inc. Provide wireless e-mail only to users who are on the road more than 50% of the time and have an urgent need for it, such as executives, financial analysts and sales reps who need it to make critical investment decisions or stay on top of multimillion-dollar deals, he says.

"Because we estimate that less than 10% of employees fit these criteria, wireless e-mail deployments in the enterprise should be small," Lowber says.

Indiscriminate deployment of wireless e-mail will raise IT costs, increase e-mail box clutter and might even reduce productivity, he says. For those middle managers who travel only occasionally, Lowber suggests they use their cell phones for urgent tasks when they're on the road. ▶

MORE RESOURCES

Our Mobile/Wireless Knowledge Center has research links from around the Web:

QuickLink k1000
www.computerworld.com

Road Warrior Vest

The eVest from Scott eVest LLC in Chicago has 22 pockets for a wide variety of gadgets, plus channels in the lining for wiring up a personal-area network or recharging. Frequent fliers may find it to be a convenient way to keep their devices handy and get through security checkpoints faster (by placing the gadget-loaded vest in the security scanner), says Daniel Rasmus, an analyst at Giga Information Group Inc.

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The eVest from Scott eVest LLC in Chicago has 22 pockets for a wide variety of gadgets, plus channels in the lining for wiring up a personal-area network or recharging. Frequent fliers may find it to be a convenient way to keep their devices handy and get through security checkpoints faster (by placing the gadget-loaded vest in the security scanner), says Daniel Rasmus, an analyst at Giga Information Group Inc.

Want to cut your IT costs without sacrificing performance? PRIMEPOWER Servers from Fujitsu.

The secret is out. PRIMEPOWER™ Solaris™-compatible servers from Fujitsu® deliver a major breakthrough in price/performance compared to our more famous competition. Want proof? PRIMEPOWER servers offer such an advantage that the world's leading companies use them to boost their performance. And there's a PRIMEPOWER server that's right for any application you need—from single CPU, rack-mounted servers to enterprise-ready systems that scale to 128 CPUs for unsurpassed performance in the data center.

Of course, it's not just the hardware you're buying. It's also Fujitsu's 30+ years of experience supporting high-performance, mission-critical systems. We've already helped many companies consolidate their IT infrastructures and lower their Total Cost of Ownership. Our free white paper, *The Why and How of Server Consolidation*, explains how. Get your copy at www.ftsi.fujitsu.com/ad. Or call (877) 905-3644.

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[illegible] BNSF says [illegible]

PHIL HOLLENBECK

The industry profits from your mistakes. So get expert assistance for managing your voice/data rate plans. By Bob Brewin

Don't Enrich the Cellular Carriers

MAYBE it seemed like a good idea to sign up all of your mobile workers for a cellular phone plan with 1,000 minutes per month — and long-distance service included — even if some of those workers use only 800 minutes a month.

Or maybe you took a seemingly more conservative approach and signed up the mobile workers for just 500 minutes a month, even if some of those workers then used additional minutes at premium rates.

In either case, savvy telecommunications buyers such as FedEx Freight and Burlington Northern Santa Fe Corp. (BNSF) say you've played right into the scheme national cellular carriers such as AT&T Wireless Services Inc. and Sprint PCS Group use to maximize their revenues.

As John Hicks, director of unified messaging at Fort Worth, Texas-based BNSF, puts it, "Overage and underage is how [the cell carriers] make their money." If an organization uses too few minutes on a cell phone plan, it loses money on the unused minutes. It also loses money if mobile workers exceed the number of minutes on their cell plans. "Multiply that by thousands of users, and it's big dollars." he says.

The national cell carriers maximize the overage and underage game — called "breakage" in the industry — so well that it accounts for up to 50% of the cell phone industry's revenues, according to Greg Fitzgerald, vice president for marketing at Traq-wireless Inc. in Austin, Texas. Traq-wireless has developed sophisticated optimization algorithms to help companies, including FedEx Freight and BNSF, manage their voice and data wireless services.

Bulk-minute purchase plans — the kind advertised daily in most major newspapers — usually aren't great

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Leading the Way to the Real-Time Enterprise

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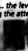
WHAT ATTENDEES ARE SAYING...

"... delivers value by bringing together senior-level IT decision-makers to share their experiences ..."

Ralph Szygenda
Group VP & CIO
General Motors

"... is wonderful ... the level of expertise among the attendees is an invaluable resource ..."



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PREMIER

IT LEADERS

CONFERENCE

February 23-25, 2003

JW Marriott
Desert Ridge Resort
Scottsdale, Arizona

Why You Should Attend

Need to lead your IT teams, departments and company to the real-time enterprise? Want to exchange innovative ideas and strategies with other top IT executives? Then attend Computerworld's Premier 100 IT Leaders Conference, the ONLY conference where you can hear from — and network with — Computerworld's Premier 100 IT Leaders.

Who Are the Premier 100?

They're a unique set of award winning IT executives with valuable lessons to share and advice to offer YOU. They are technologists who understand business needs, take calculated risks and lead through innovation. They are CIOs, vice presidents of IT, directors of IT and business managers honored as Computerworld's Premier 100 from a wide swath of vertical industries. When you attend this unique conference, you'll hear proven examples of how these IT Leaders have advanced their organizations through innovative leadership and proven strategies.

What is Unique?

Crafted by Computerworld editors, this conference offers a radical departure from the standard IT event. With a focus on great ideas, best practices and real applications of IT strategy, you gain direct insight from leading user organizations. The major sessions provide highly interactive, entertaining discussions with IT Leaders and industry experts — each moderated by Computerworld editors in a town-hall meeting format. Key topics center on the intersection of technology and business in areas critically important to today's IT manager.

Maryfran Johnson

Lead Your Organization to the Real-Time Enterprise!

[illegible] **Strategies**
100

[illegible]

- [illegible] **Value of IT**
- [illegible] **Customer Connection**
- [illegible] **Company Assets**
- [illegible] **Infrastructure**

CONFERENCE AGENDA

SUNDAY, FEBRUARY 23

Noon to 5:00pm
Pre-conference Golf Outing

7:00pm to 9:00pm
Pre-conference Networking Reception

MONDAY, FEBRUARY 24

7:00am to 8:00am
Buffet Breakfast

8:00am to 8:15am
Welcome and Opening Remarks
MARYFRAN JOHNSON, EDITOR IN CHIEF, COMPUTERWORLD

8:15am to 8:45am

Opening Keynote
Driving the Digital Factory: DaimlerChrysler's Design Automation Push

SUSAN UNGER, CIO, DAIMLERCHRYSLER

Escalating its use of IT in car design and factory automation, the world's third-largest automaker has embarked on a massive "Digital Factory" project aimed at reducing production costs by up to 30%. CIO Susan Unger will detail how the use of manufacturing simulation and visualization tools is enabling DaimlerChrysler to push IT beyond its traditional roles in the car manufacturing process, but more importantly, how the project is changing the way technology is leveraged for business benefit.

8:45am to 9:30am

Blueprint for Tomorrow's Infrastructure

PANEL MODERATOR: DON TENNANT, NEWS EDITOR, COMPUTERWORLD

With up to 80% of IT budgets earmarked for infrastructure upkeep and upgrades, attention to trends affecting the data center will continue to intensify in 2003. Major vendors are pushing a variety of utility and autonomic computing models, while disruptive technologies such as blade servers, Linux, wireless and Storage Area Networks (SANs) are also making inroads in enterprise computing strategies. How do you craft a coherent blueprint for optimizing data center spending? Should you be consolidating your computing resources? What role should your vendors play? Where will outsourcing make the most sense? Computerworld News Editor Don Tennant will lead this debate about the best ways to keep your company's IT infrastructure flexible, cost-effective and future-oriented.

9:30am to 10:15am

Creating Business Value Out of Real-Time Information

CURTIS ROBB, CIO, DELTA AIR LINES

In today's competitive market, businesses must deliver better customer service, turn inventory faster, and respond swiftly to changing circumstances. In this session, Curtis Robb addresses how Delta has leveraged a multi-year investment in a real-time, state-of-the-art infrastructure and the resulting business value it drives. From enhancing the customer travel experience through its self-service kiosks and gate information display screens, to forecasting and optimizing fleets, routes, pricing and inventory, the Delta Nervous System has transformed the business by delivering up-to-date information through a "publish and subscribe" architecture.

10:15am to 10:30am
Break

10:30am to 11:00am

Vanguard Financial: Leveraging the Web Across Multiple Business Channels

TIM BUCKLEY, CIO, THE VANGUARD GROUP

Technological excellence can be a means of helping clients to meet their goals, but the race to embrace new technologies must always make business channels the priority. At Vanguard, IT resources for Web development play a dual role on the business side, improving quality and relative savings for clients. In this session, Vanguard CIO Tim Buckley will examine how the $600 billion financial services firm has leveraged its website technology to integrate systems across multiple business channels, with results that include streamlined business processes, reduced costs, retired legacy systems, and most importantly, seamless service for clients no matter how complex their relationship with Vanguard.

11:00am to 11:30am
Concurrent Sessions
IT User/Customer Case Studies

11:30am to Noon
Concurrent Sessions
IT User/Customer Case Studies

Noon to 12:30pm
Concurrent Sessions
IT User/Customer Case Studies

12:30pm to 1:30pm
Interactive Luncheon

1:30pm to 2:00pm

The New Language of Leadership

THORNTON MAY, FUTURIST

Joan Rivers asks, "Can we talk?" but Thornton May's new research poses the question, "Can IT leaders talk effectively?" Are you communicating what needs to be done in a way that gets somebody to do it? Based on an exclusive study of IT communication practices in a variety of venues — in boardrooms, in deliberation with senior staff, in counsel with peer executives, and in encounters with vendors, journalists, researchers and stock analysts — Thornton will detail the new language of leadership necessary for career success.

2:00pm to 2:30pm

Brand and Deliver: IT's Role in Creating Killer Brands

ANDREW ZOLLI, LEAD PARTNER, Z + PARTNERS

Great brands are often the most valuable assets companies own,

CONFERENCE AGENDA

and in the last few years IT has taken center stage in building some of the world's most important and valuable brands. Yet the relationship between the CIO and the Chief Marketing Officer remains one of the least explored in management. In this presentation, technology and communications consultant Andrew Zolli will share stories of companies creating thriving brands with information technology, and insights on how IT and marketing can amplify each other's value and impact.

2:30pm to 3:15pm

The Integration Imperative: Where Technology Gets Down to Business

PANEL MODERATOR: PRISCILLA TATE, EXECUTIVE DIRECTOR, TECHNOLOGY MANAGERS FORUM

As the lineup of new integration products and emerging Web services keeps growing, so too does the challenge of connecting the right data with the right customers at exactly the right time. Some companies are finding value in combining business intelligence tools with CRM software, while others are creating "digital dashboards" or concentrating on more cost-effective ways to exchange data between complex, disparate legacy systems. Regardless of your company's approach, the task of integrating enterprise applications is always mission-critical for IT leaders. Moderator Priscilla Tate will tap this panel's expertise on a variety of integration projects that have delivered measurable results, cost savings or enhanced customer service.

3:15pm to 3:30pm
Break

3:30pm to 4:00pm

A Tale of Turnaround: Reviving a Culture of IT Project Success at the Chicago Board of Trade

WILLIAM FARROW, EVP AND CIO, CHICAGO BOARD OF TRADE

When CIO Bill Farrow arrived at the Chicago Board of Trade, it had been four years since any IT projects finished on time or on budget. The place was overrun with consultants, the technology was a poorly-managed hodgepodge of aging systems, and project management was nonexistent. Today, a streamlined, motivated IT group can point to 40 successful projects completed in the past year. In this compelling account of an 18-month-long IT turnaround, Farrow will detail how he and his staff became catalysts of strategic change at this 155-year-old financial exchange.

4:00pm to 4:45pm

IT Sourcing Faceoff: The View From Both Sides of the Fence

PRESENTATION & POINT/COUNTERPOINT: BART PERKINS, MANAGING PARTNER, LEVERAGE PARTNERS

How your organization buys and deploys technology speaks volumes about the effectiveness of your overall IT strategy. With the marked shift from the sellers' market of the late '90s to today's buyers' market, the game has changed substantially on both sides of the fence. Former CIO Bart Perkins specializes in teaching CIOs how to more effectively manage their suppliers, and how to apply the same rigor to sourcing decisions as IT applies to building applications. In this point/counterpoint discussion, he will referee a frank, freewheeling dialogue between technology leaders from both vendor and user companies.

4:45 to 5:15pm
Session to be announced

5:15pm to 5:30pm
Monday Wrap-up Remarks
MARYFRAN JOHNSON, EDITOR IN CHIEF, COMPUTERWORLD

5:30pm to 8:30pm
Expo Open, Networking Reception and Buffet Dinner

TUESDAY, FEBRUARY 25

7:00am to 8:00am
Buffet Breakfast

8:00am to 8:15am
Opening Remarks
MARYFRAN JOHNSON, EDITOR IN CHIEF, COMPUTERWORLD

8:15am to 8:45am

Cybercrime in Perspective: Leadership Strategies for the Real-Time Information Age

SCOTT CHARNEY, CHIEF SECURITY STRATEGIST, MICROSOFT

Never before in history have our personal lives and professional dependencies on computers, networks and real-time information escalated at such a rapid pace. Yet each week we hear of new attacks on the confidentiality, integrity and availability of these very systems — everything from theft of personal information to distributed denial of service attacks that can cripple business operations. While such attacks can pose an alarming threat to our public safety, national security, economic prosperity and privacy, there are complex social issues and public-policy questions raised as we work to prevent or respond to them. In this opening keynote, Scott Charney will cover the history and current state of cybercrime, talk about the challenges IT leaders face in confronting computer abuse, and suggest some options to consider for a safer future.

8:45am to 9:30am

Whose Disaster Is This, Anyway?

PANEL MODERATOR: DAN VERTON, SECURITY REPORTER, COMPUTERWORLD AND AUTHOR OF "THE HACKER DIARIES . CONFESSIONS OF TEENAGE HACKERS."

Imagine a scenario that is equal parts physical disaster and massive cyberattack, forcing your company into a worst-case situation that makes business continuity of paramount importance. Now mix in several industry experts and IT leaders, each playing a specific role in this lively, "situation room" roundtable led by Computerworld security reporter and author Dan Verton. This panel will grapple with everything from federal politics and public agency responsibilities to private sector roles and reactions as the responses of each executive drive the actions of the others in this unfolding disaster response exercise. The wrap-up will reveal the likely aftermath of the panelists' decisions, complete with lessons learned and useful ideas for your own business continuity planning.

9:30am to 10:15am
Session to be announced

10:15am to 10:30am
Break

10:30am to 11:00am

Starting from Scratch: Building CRM from the Ground Up

TONY LOFRUMENTO, EVP OF CRM, MORGAN STANLEY

Tony LoFrumento joined Morgan Stanley's retail organization in 2001 with the mission to implement a world-class CRM infrastructure and environment. In this front-lines account of his experience, Tony will describe how he created an analytical CRM environment and how it has delivered immediate impact throughout the company. He will discuss implementation issues, vendor selection rationale and performance measurement via the "Balanced Scorecard" approach, as he demonstrates how the newly implemented CRM capabilities are enhancing Morgan Stanley's customer connections.

11:00am to 11:30am
Concurrent Sessions
IT User/Customer Case Studies

11:30am to Noon
Concurrent Sessions
IT User/Customer Case Studies

Noon to 12:30pm
Concurrent Sessions
IT User/Customer Case Studies

12:30pm to 2:00pm
Expo Open and Buffet Luncheon

2:00pm to 2:30pm

The Consultant Who Came In From The Cold

STEVE ROMAINE, CHIEF IT ARCHITECT, THE HARTFORD FINANCIAL

Steve Romaine, now chief IT architect for The Hartford Financial, is also the author of "Soldier of Fortune 500," an IT manager's expert guide to getting top work out of consultants. In this fast-paced presentation, he will dispel "The Three Myths of Consulting," provide solid, front-lines advice on selecting the right consultants and reveal his tested methods for getting IT employees and outside contractors working collaboratively and successfully together.

2:30pm to 3:15pm

Beyond Cost-Cutting: IT Projects That Prove Their Value.

PANEL MODERATOR: JULIA KING, MANAGEMENT EDITOR, COMPUTERWORLD

Proving that technology spending results in real business value is a perennial challenge for IT leaders, particularly in an extended economic downturn. But now that your staff is streamlined and your budget trimmed to the bone, what next? Computerworld Management Editor Julia King and her panelists will answer that question from several directions, detailing how to hand-pick projects for faster payback, more effectively manage the IT portfolio, balance tactical concerns with strategic vision, and identify the best places for IT-enabled business process improvements across the enterprise.

3:15pm to 3:30pm
Break

3:30pm to 4:00pm
Session to be announced

4:00pm to 4:45pm

Leadership Keynote

WARREN BENNIS, DISTINGUISHED PROFESSOR OF MANAGEMENT, USC

4:45pm to 5:00pm
Final Remarks and Conference Summary
MARYFRAN JOHNSON, EDITOR IN CHIEF, COMPUTERWORLD

7:00pm to 7:30pm
Cocktail Reception

7:30pm to 9:00pm
Honoree Recognition, Gala and 'Best in Class' Awards Ceremony

HOTEL RESERVATIONS

IDG Travel is the official travel company for the Computerworld Premier 100 IT Leaders Conference. They are your one-stop shop for exclusive discounted rates on hotel accommodations.

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Scottsdale, Arizona

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Non-Sponsoring Vendor**	$5,000	$5,000

* See IT End-User description on the registration application on reverse.
** See Non-Sponsoring Vendor description on the registration application on reverse.

F[illegible] more informati[illegible] www.premier100 com/west or [illegible]
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IT LEADERS
CONFERENCE

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All dollar amounts are in U.S. funds, registrations include full access to all sessions, the Expo, meals and receptions. Transportation and hotel accommodations are your responsibility and can be reserved by visiting www.etcentral.com, calling 1-800-340-2262, or emailing eventhousing@idg.com

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* IT End-Users are defined as those who are attending Computerworld's Premier 100 IT Leaders Conference with an intent (and an IT spending budget) to potentially buy/purchase hardware/software/services/etc. from our conference sponsors and exhibitors. As such, account representatives/business development from any company, analysts, venture capitalists, and anyone else attending who does not have IT purchasing influence within their organization are excluded from the "IT End-User" designation. Enforcement of this interpretation and policy is at the sole discretion of Computerworld. Questions? Please call 1-800-883-9090

** Vendors are encouraged to participate in Computerworld's Premier 100 IT Leaders Conference through sponsorship. (Details are available by calling Leo Leger at 1-508-820-8212.) Alternatively, vendors (as well as venture capitalists, equity analysts, and other "non-IT end-user" professionals as defined by Computerworld) may apply for registration at the "non-sponsoring vendor" rate. Determination of what constitutes a "non-sponsoring vendor" registration is at the sole discretion of Computerworld

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First Name: ________ Middle Initial: ________ Last Name: ________

Title: ________ Company: ________

Street Address: ________ Suite, Apt., etc.: ________

City: ________ State/Prov: ________ Zip/Postal Code: ________

Country: ________ Phone Number: ________ Extension: ________

Fax Number: ________ E-Mail Address: ________

Badge Name: ________ ☐ Special Services Required? (Please attach written description)

Would you like to receive information about playing in the golf outing on Sunday, February 23rd (PM)? ☐ Yes ☐ No

Please indicate your preferred conference shirt size: ☐ S ☐ M ☐ L ☐ XL ☐ XXL ☐ XXXL

Attendee Profile: (This section must be completed in order to process your application)

Your Organization's Business / Industry?
(Check Only One)

- ☐ Transportation / Utilities
- ☐ Mining / Oil / Gas
- ☐ Non-Profit / Trade Association
- ☐ Media / Publishing
- ☐ Banking
- ☐ Finance
- ☐ Accounting
- ☐ Insurance
- ☐ Real Estate
- ☐ Telecommunications
- ☐ Wholesale / Retail (non-computer)
- ☐ Computer Service Provider
- ☐ Advertising / Marketing / Public Relations
- ☐ Entertainment
- ☐ Education
- ☐ Food Industry
- ☐ Government / Military
- ☐ Healthcare / Medical Services
- ☐ Travel /Hospitality / Recreation
- ☐ Manufacturing (non-IT)
- ☐ Automobile
- ☐ Transportation / Utilities / Energy
- ☐ Computers, Communications or Peripheral Equipment or Software Manufacturing
- ☐ Agriculture / Forestry / Fisheries
- ☐ Other

Your Primary Job Title / Function?
(Check Only One)

- ☐ CIO, CTO
- ☐ Vice President of IT
- ☐ Director, Manager, Supervisor of IT
- ☐ Other IS / IT Manager
- ☐ Chairman, CEO, President, COO
- ☐ CFO, Controller, Treasurer
- ☐ GM, VP, Director
- ☐ Other Corporate / Business Manager
- ☐ Corporate / Business Staff
- ☐ Consultant

Your Personal IT/IS Spending Authority?

- ☐ $5 million+
- ☐ $1 million - $4.9 million
- ☐ $500,000 - $999,999
- ☐ $100,000 - $499,999
- ☐ Under $100,000
- ☐ None

Number of Employees (ALL Locations)?

- ☐ 5,000+
- ☐ 1,000- 4,999
- ☐ 500 - 999
- ☐ Under 500

What is your Company IT/IS Budget?

- ☐ Over $1 billion
- ☐ $100 million - $999.9 million
- ☐ $10 million - $99.9 million
- ☐ $1 million - 9.9 million
- ☐ Less than $1 million
- ☐ None

What is Your Organization's Primary Vendor for Servers?

- ☐ Dell
- ☐ Hewlett-Packard / Compaq
- ☐ Hitachi
- ☐ IBM
- ☐ Sun
- ☐ Other

Your Organization's Enterprise Standard for Mobile Device Management Software?

- ☐ Aether Systems
- ☐ Altiris
- ☐ Computer Associates
- ☐ Extended Systems
- ☐ Hewlett Packard / Compaq
- ☐ IBM Tivoli
- ☐ Landesk Software
- ☐ Managesoft
- ☐ Marimba
- ☐ mFormation
- ☐ Microsoft
- ☐ Mobile Automation
- ☐ Novadigm
- ☐ Novell
- ☐ ON Technology
- ☐ Pumatech
- ☐ Starfish
- ☐ Synchrologic
- ☐ Wavelink
- ☐ XcellNet
- ☐ Other
- ☐ No Standard Yet Established

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2) He or she may transfer this registration to the next Premier 100® conference, if written notice is received by February 4, 2003.
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Please send cancellation requests via email to p100reg@computerworld.com or call 1-800-883-9090 for assistance.

Computerworld reserves the right to limit and/or refuse any registration for any reason.

How to Control Cell Phone Costs

DON'T. . .

- **Treat** cell phone bills as an expensed travel/entertainment item.
- **Take** a one-size-fits-all approach to cell phone rate plans.
- **Buy** nationwide plans for mobile workers who never leave a specific state or region. And don't buy regional plans for coast-to-coast road warriors.
- **Buy** too many or too few minutes. The cellular industry calls that "breakage" and derives about 50% of its revenues from those customer mistakes.

DO. .

- **Manage** enterprise cell phone usage centrally.
- **Buy** cell phone service to fit mobile workers' geographical range, usage and long-distance needs.
- **Consider** using a wireless management company to optimize your cell phone costs.

deals for organizations with thousands of mobile workers, Fitzgerald says.

Even so-called nationwide plans carry their own hidden costs, according to Delly Tamer, president and CEO of LetsTalk.com Inc. in San Francisco, which offers cell phone management and optimization services to major enterprise users.

Users who roam off the nationwide network of any major carrier and use an affiliate network will get hit with hefty charges, says Tamer. Although this occurs more often in rural locales than in major metropolitan areas, Tamer says it can happen in big cities such as San Francisco, where a major carrier's coverage holes can force users to unwittingly make expensive roaming calls.

A Daunting Task

Enterprises could try to fine-tune their management of cell phone costs themselves, but that's a daunting task, says Bill Marsh, founder of Traq-wireless and the company's vice president for strategy and technology. Indeed, the cellular carriers have such a bewildering array of rate plans that looking for the cheapest airline fare seems easy by comparison.

Marsh estimates that the cellular carriers offer a staggering total of 14,000 rate plans — far too many for even a heavily staffed IT department to decipher.

Few enterprises bother to make sense of these rate plans or to centrally manage their cell phone costs, according to a report by Peter Firstbrook, an analyst at Meta Group Inc. in Stamford, Conn. Firstbrook estimates that 30% to 40% of U.S. corporations allow mobile workers not only to expense their own cell phone costs, but also to choose their own plans. It's "not only an inefficient way to control spending, but also results in higher overall costs due to lack of corporate discounts," the report says.

FedEx Freight, a division of FedEx Corp. in Memphis, is able to tap into corporate discounts that its parent and sister companies have obtained from all the national cellular carriers. But those deals didn't help FedEx Freight determine what kind of plan various classes of users should be on.

That's where Traq-wireless comes in, says Jeff Amerine, managing director for communications and network services at FedEx Freight. Traq-wireless helps the company determine — on a month-to-month basis — the best plan for each of its users.

Marsh says Traq-wireless typically monitors an organization's wireless use for three months, analyzing usage patterns (for 2,000 mobile workers in the case of FedEx Freight) with its optimization algorithms. At the end of that time, Marsh says, Traq-wireless can determine whether a user should be on a national, regional or local plan, how many minutes should be allocated to each user and whether long-distance service should be bundled with the plan.

DEAD CELL ZONES?

Finding out where in the country a cell phone will work – or not – is a frustrating exercise. So check out our guide to cell coverage maps and the Dead Cell Zones site.

QuickLink 34472
www.computerworld.com

The optimization algorithms also allow Traq-wireless to switch users from one type of plan to another every month based on their usage pattern. According to Amerine, FedEx also uses Traq-wireless to track multiple devices other than cell phones, such as BlackBerry e-mail devices, with the costs for each mobile worker highlighted on a Web-based billing form.

Amerine says that using Traq-wireless has helped him cut the average cost of cell phone use from 25 cents per minute in July 2001 to 15 cents per minute in August 2002 — while the number of minutes used jumped from 77,000 to slightly more than 600,000.

The gross savings amounted to $309,800, with net savings of $278,400 after subtracting $31,400 in payments to Traq-wireless.

Amerine says he's so impressed by Traq-wireless' capabilities that he plans to turn over management of FedEx Freight's wireline long-distance services to the company.

Cutting Costs

BNSF's Hicks reports similar results from the service. He says the railroad company, which currently has 3,500 cell phones under management by Traq-wireless, was able to cut its per-minute costs by 30%, while the number of minutes used doubled.

Besides cutting costs, Traq-wireless provides BNSF with a management tool that correlates cell phone use with productivity. Hicks says this allows BNSF to compare the cell phone usage rates of salespeople to the amount of revenue they generate, thus making it easy for managers to allocate extra minutes of cell phone use to top performers.

At the same time, the Traq-wireless service allows BNSF to monitor the ratio of personal calls (which the company allows) to business calls and cut back on the minutes allocated to mobile workers who make an excessive number of personal calls.

In addition to the bottom-line savings generated by the optimization software, Traq-wireless saves BNSF the time and trouble of analyzing individual phone bills.

Hicks, who's responsible for all of BNSF's phone, e-mail and wireless systems, says he plans to outsource virtually all of the company's cellular infrastructure and billing, including the purchase of phones for individual employees — another timesaver, since Hicks estimates the average life of a cell phone within BNSF to be about six months.

Meta Group's Firstbrook says this centralized approach to wireless and cell phone management is the exception rather than the rule today. He estimates that only 10% of organizations have the kind of visibility into their wireless voice and data costs to even attempt to centrally manage them.

But Firstbrook predicts that over the next two years, companies such as Traq-wireless and LetsTalk will continue to gain customers as they beef up their expertise and spread into all areas of wireless device management — handheld computers, smart phones and high-speed cellular data. By 2004, he expects to see a merging of wireless management with the management of wireline networks. ■

Voice-Mail Alert!

[illegible]

How to Control Cell Phone Costs

DON'T . . .

- **Treat** cell phone bills as an expensed travel/entertainment item
- **Take** a one-size-fits-all approach to cell phone rate plans.
- **Buy** nationwide plans for mobile workers who never leave a specific state or region. And don't buy regional plans for coast-to-coast road warriors.
- **Buy** too many or too few minutes. The cellular industry calls that "breakage" and derives about 50% of its revenues from those customer mistakes.

DO

- **Manage** enterprise cell phone usage centrally.
- **Buy** cell phone service to fit mobile workers' geographical range, usage and long-distance needs.
- **Consider** using a wireless management company to optimize your cell phone costs.

deals for organizations with thousands of mobile workers, Fitzgerald says.

Even so-called nationwide plans carry their own hidden costs, according to Delly Tamer, president and CEO of LetsTalk.com Inc. in San Francisco, which offers cell phone management and optimization services to major enterprise users.

Users who roam off the nationwide network of any major carrier and use an affiliate network will get hit with hefty charges, says Tamer. Although this occurs more often in rural locales than in major metropolitan areas, Tamer says it can happen in big cities such as San Francisco, where a major carrier's coverage holes can force users to unwittingly make expensive roaming calls.

A Daunting Task

Enterprises could try to fine-tune their management of cell phone costs themselves, but that's a daunting task, says Bill Marsh, founder of Traq-wireless and the company's vice president for strategy and technology. Indeed, the cellular carriers have such a bewildering array of rate plans that looking for the cheapest airline fare seems easy by comparison.

Marsh estimates that the cellular carriers offer a staggering total of 14,000 rate plans — far too many for even a heavily staffed IT department to decipher.

Few enterprises bother to make sense of these rate plans or to centrally manage their cell phone costs, according to a report by Peter Firsthrook, an analyst at Meta Group Inc. in Stamford, Conn. Firstbrook estimates that 30% to 40% of U.S. corporations allow mobile workers not only to expense their own cell phone costs, but also to choose their own plans. It's "not only an inefficient way to control spending, but also results in higher overall costs due to lack of corporate discounts," the report says.

FedEx Freight, a division of FedEx Corp. in Memphis, is able to tap into corporate discounts that its parent and sister companies have obtained from all the national cellular carriers. But those deals didn't help FedEx Freight determine what kind of plan various classes of users should be on.

That's where Traq-wireless comes in, says Jeff Amerine, managing director for communications and network services at FedEx Freight. Traq-wireless helps the company determine — on a month-to-month basis — the best plan for each of its users.

Marsh says Traq-wireless typically monitors an organization's wireless use for three months, analyzing usage patterns (for 2,000 mobile workers in the case of FedEx Freight) with its optimization algorithms. At the end of that time, Marsh says, Traq-wireless can determine whether a user should be on a national, regional or local plan, how many minutes should be allocated to each user and whether long-distance service should be bundled with the plan.

The optimization algorithms also allow Traq-wireless to switch users from one type of plan to another every month based on their usage pattern. According to Amerine, FedEx also uses Traq-wireless to track multiple devices other than cell phones, such as BlackBerry e-mail devices, with the costs for each mobile worker highlighted on a Web-based billing form.

Amerine says that using Traq-wireless has helped him cut the average cost of cell phone use from 25 cents per minute in July 2001 to 15 cents per minute in August 2002 — while the number of minutes used jumped from 77,000 to slightly more than 600,000.

The gross savings amounted to $309,800, with net savings of $278,400 after subtracting $31,400 in payments to Traq-wireless.

Amerine says he's so impressed by Traq-wireless' capabilities that he plans to turn over management of FedEx Freight's wireline long-distance services to the company.

Cutting Costs

BNSF's Hicks reports similar results from the service. He says the railroad company, which currently has 3,500 cell phones under management by Traq-wireless, was able to cut its per-minute costs by 30%, while the number of minutes used doubled.

Besides cutting costs, Traq-wireless provides BNSF with a management tool that correlates cell phone use with productivity. Hicks says this allows BNSF to compare the cell phone usage rates of salespeople to the amount of revenue they generate, thus making it easy for managers to allocate extra minutes of cell phone use to top performers.

At the same time, the Traq-wireless service allows BNSF to monitor the ratio of personal calls (which the company allows) to business calls and cut back on the minutes allocated to mobile workers who make an excessive number of personal calls.

DEAD CELL ZONES?

Finding out where in the country a cell phone will work - or not - is a frustrating exercise. So check out our guide to cell coverage maps and the Dead Cell Zones site.

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Voice-Mail Alert!

Calls to office voice-mail systems make up about 10% of all cellular calls placed by mobile workers, says Traq-wireless. Is there a way to make checking office voice mail easier and cheaper?

In October, Verizon Wireless started offering a service called Office Message Alert to organizations that house their voice mail on central private branch exchange (PBX) systems. Office Message Alert takes an incoming voice mail and sends it out to a cell phone as a 20-character Short Messaging Service (SMS) message.

Once the cellular subscriber receives the message, all he has to do is hit the Talk button on the handset of his phone to be connected to the person who left the voice mail.

Bedminster, N.J.-based Verizon Wireless uses software developed by TeleCommunication Systems Inc. in Annapolis, Md., for its Office Message Alert system. The software serves as a bridge between the office PBX system and the Verizon Wireless network, automatically forwarding the messages from corporate customers who sign up for the service.

Traq-wireless started offering a service called Voice Mail Alert System in September. Like the Verizon Wireless system, the Traq-wireless service is tied into an enterprise PBX and automatically forwards details of voice mails via SMS messages. But the Traq-wireless system is connected to a database that performs lookup functions on the identity of the caller and can forward not only the number, but also the name and address of the caller.

Besides providing a wealth of detail about office voice-mail messages to mobile workers, the systems also save valuable airtime and can help cut cell phone bills.

– Bob Brewin

The Office Goes Wirele

UNTIL RECENTLY, wireless LANs were considered a specialized technology used mainly in warehouses and logistics management. That began changing with the introduction of the 11M bit/sec. 802.11b and 54M bit/sec. 802.11a wireless Ethernet standards. Now the technology may be catching on for general office use. While just 8% of corporations have deployed WLANs, 54% say they plan to do so within two years, according to The Yankee Group in Boston. "Most enterprises recognize that wireless or mobility is a cornerstone of their future operations," says Yankee analyst Adam Zawel.

TECH CHECK

Currently, however, WLANs are still largely confined to specialized applications in hospitals, retail establishments, universities and warehouses. Within office buildings, WLAN deployments tend to be more limited. While the technology is mature enough for enterprisewide use, in many organizations it isn't considered essential to operations. Pittsburgh-based H.J. Heinz Co., for example, placed 20 Cisco Aironet 350 access points (AP) in its headquarters but installs APs elsewhere only when an office requests it. Heinz has no plans to provide enterprisewide WLAN access.

"There was no real business issue that WLAN addresses," says Kurt Kleinschmidt, a senior network analyst at Heinz. "It was just nice to have."

RICHARD LILLASH

Organizations that do opt for a WLAN, however, face many critical decisions. First they must decide whether to use 802.11b or the newer, faster 802.11a technology. The answer depends both on bandwidth needs and the current level of WLAN deployment within the organization.

"Our recommendation, if you are installing it in a multistory corporate environment, is to look at 11a because of its scalability," says Mark Van Pelt, vice president of technical operations at WLAN consulting firm Donovan Consulting Group Inc. in East Brunswick, N.J. The 802.11a specification "has smaller cells but higher performance and less interference," he explains.

Cell size, or range, is just one factor in laying out a WLAN. AP radio frequency signals must pass through ceilings, floors, walls and other objects, and that results in signal degradation that the design must take into account.

Coverage can vary greatly from site to site, users say. The only real way to determine placement is by doing a site survey using the antennas to be installed, since different models produce different wave propagation patterns. And the survey must determine how a building's construction materials block or absorb signals.

"A lot has to do with the physical construction of the building, such as the amount of metal in the walls," says Jim Keeler, vice president of engineering development at Wayport Inc. in Everett, Wash., a company that sets up 802.11b networks in hotels and airports. "Airports contain absorbers of the 2.4 GHz band — human beings — so signal-coverage tests when empty are different than when crowded."

Too Much of a Good Thing

But having too many APs can be as bad as having too few. "If two APs are in the same room, both with the same signal strength, the client gets a bit nuts constantly evaluating whether it should be on this AP or that one," explains Van Pelt. "If the second one is far enough away that there is a [20-decibel] difference, there is no question."

Another important implementation consideration is the right security architecture to prevent unauthorized access.

Once an organization determines where APs go, they are relatively easy to install and configure. Windows 2000 and XP, and many handheld devices, are designed to automatically locate 802.11b signals. Wireless users can be managed using the same network/systems management software as hard-wired users.

"Configuring the access points is not much harder than just plugging them in," says Dr. John Halamka, CIO for the CareGroup Health System hospital consortium in Boston. "Placement and security are the difficult parts." ■

Robb is a freelance writer in Tujunga, Calif. Contact him at drewrobb@attbi.com.

WIRELESS CHOICES

Find out how to choose between 802.11a and b, how an expert sets up WLANs, and how CareGroup Health System implemented a wireless hospital network:

QuickLink 34725
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Glass Shatters WLAN Connection

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Los Angeles

CASE STUDY

IT MANAGER: James Wiedel, director of networking

IT GOAL: Securely connect off-campus sororities, fraternities and common areas to the university network.

STRATEGY: Wiedel initially installed 50 RoamAbout R2 802.11b access points (AP) from Rochester, N.H.-based Enterasys Networks Inc. and later added another 135 APs for common areas. He put the WLAN nodes on a separate physical network for security purposes. Users who haven't registered are shut out after the first packet is sent.

The university supports only the RoamAbout for PC clients and Apple AirPorts for Macintosh computers. Wiedel also set up a system to bill wireless usage to departments based on each user's MAC address.

CHALLENGES: Signal quality varies widely due to the types of building materials used throughout the university. For example, the leaded glass in windows in older buildings blocks signals, as does ductwork for the heating and ventilation system. "In my office, I'm only 30 feet from an AP, but because of air conditioning ducts, I get better coverage from across the street," Wiedel says.

PAYOFF: The system provides network access to a wider area of the campus without the need to dig trenches or run wires. "It was quite cost-effective for us to do aerial connections instead of underground work," Wiedel says.

COMMENTS: "Doing a site survey is the single most important element, so you can see what the coverage patterns really look like," Wiedel says.

Freight Carrier Puts Lid On User Bandwidth

FedEx Corp.

Memphis

CASE STUDY

IT MANAGER: Ken Pasley, director of wireless systems development

IT GOAL: Improve productivity by enabling employees to log into the network from any FedEx administrative office or facility.

STRATEGY: FedEx used a 802.11b WLAN network template it had developed for its distribution facilities and airport and customer locations. The template builds a matrix showing the number of access points (AP) required and the type of infrastructure needed to support all users at a given location.

FedEx now has some 4,600 802.11b APs, supplied by several major WLAN vendors, installed in its offices. Sales staff and other employees can now walk into any FedEx office and log onto the network through a virtual private network.

CHALLENGES: Pasley handled bandwidth overload by implementing policies restricting use to light applications such as e-mail. Overloading the WLAN results in a loss of access privileges. FedEx also discourages people from setting up rogue APs by disallowing access through nonapproved equipment.

PAYOFF: Employees can come in from another city and continue their working day; they don't have to search the office for a place to plug in or wait until they get to their hotel rooms at night.

COMMENTS: "Make sure wireless is not looked at as the solution for everything," Pasley says. "Once people find out how easy it is, everybody wants to use the WLAN, even for downloading 10MB files. If you don't limit access, you are in trouble."

PRODUCTS

Tools Must Meet IT Needs

WLAN hardware and software products are pervasive, but not all of them suit the needs of corporate IT. Here's what to look for:

ADAPTERS AND ACCESS POINTS

While anyone can buy WLAN equipment at an electronics superstore, most models won't have the more sophisticated security and management features that IT professionals require. Stick with established leaders that offer enterprise-class support, such as Cisco Systems Inc., 3Com Corp. in Santa Clara, Calif., and Enterasys Networks Inc. in Rochester, N.H.

SPECIALIZED DEVICES

For uses outside of the office, consider vendors like Symbol Technologies Inc. in Holtsville, N.Y., WhereNet Corp. in Santa Clara, Calif., and Intermec Technologies Corp. in Everett, Wash. They produce specialized computing devices for trucking, warehousing and retail applications.

MANAGEMENT TOOLS

Many WLAN hardware vendors offer hardware and software for managing WLANs. These include traffic and signal analyzers from WildPackets Inc. in Walnut Creek, Calif., and AirMagnet Inc. in Mountain View, Calif. AirWave Wireless Inc., in San Mateo, Calif., offers software to configure, manage and secure WLANs.

Radio Frequency Identification

DEFINITION

Radio frequency identification (RFID) uses low-powered radio transmitters to read data stored in a transponder (tag) at distances ranging from 1 in. to 100 ft. RFID tags are used to track assets, manage inventory and authorize payments, and they increasingly serve as electronic keys for everything from autos to secure facilities.

BY BOB BREWIN

AUSTRALIAN SHEEP and haute couture from Prada might not seem to have much in common, but they do. Each is a valuable asset tracked by radio frequency identification (RFID) technology.

In the case of the sheep, a small plastic "smart tag" affixed to the animal's ear contains pertinent information about its bloodlines, date of birth and shot records.

The tag Milan, Italy-based Prada (officially known as I Pellettieri d'Italia SpA) uses on merchandise at its showcase Epicenter store in New York carries information about a garment's style, size, color and other details, including price.

QUICK STUDY

The RFID tag in the sheep's ear contains a silicon chip to store data and a miniature antenna. The Prada tag and antenna, developed by Dallas-based Texas Instruments Inc., can be printed or etched on an electronic substrate, which is then embedded in a plastic or laminated paper garment tag.

Data from these tags is captured by a reader unit, which consists of an antenna and radio transmitter, attached to a stationary or handheld device. The reader emits radio waves, and when a tag comes within the range of the reader, the tag wakes up and starts sending data. The reader captures this bit stream, decodes it and sends it back over a network to a host processor.

RFID operates in a number of unlicensed frequency bands worldwide, with 125 KHz and 13.56 MHz the most common. The 13.56-MHz tags hold as much as 2,000 bits of data, or roughly 30 times the information of 125-KHz tags.

These systems have a relatively short range — inches to a few feet — but that's enough for inventory control or payment applications, such as Irving, Texas-based Exxon Mobil Corp.'s SpeedPass, which is already used by 6 million motorists. A gas-pump-based reader interrogates the key-fob SpeedPass (which contains a chip and an antenna) waved inches from the pump, obtains its identifier, passes that on via a Very Small Aperture Terminal (VSAT) network to a back-end system for credit approval and then turns on the pump — all in seconds.

Although the majority of RFID tags are write-once/read-only, others offer read/write capability and could, for example, allow origin and destination data embedded in a shipping container's tag to be rewritten if the container is rerouted. The data store on a 13.56-MHz tag is large enough to contain routing information for the shipping container and a detailed inventory of the products inside.

SpeedPass and garment tags use what is known as passive RFID technology, with power to the tag supplied by the RF energy transmitted by the reader. Longer-range applications, such as automated toll-collection systems, use active — and more expensive — battery powered tags.

RFID tags used in inventory control and supply chain management applications compete with bar codes, but RFID tags can contain far more detailed information than bar codes. RFID tags also offer retailers an easier way to manage inventory than bar codes, which require a clear line of sight between the laser scanner and bar code.

'Smart Shelf'

In a 2001 test of RFID technology, San Francisco-based The Gap Inc. equipped some of its stores with "smart shelves" containing RFID readers. The system used built-in readers to instantly monitor the inventory on the smart shelves, gathering information on each garment through layers in a stack, a task that would be impossible with a bar-code scanner.

A majority of the new cars sold in the world by U.S., European and Japanese automakers now come equipped with keys embedded with RFID tags that each contain a unique identifier. When the key is inserted in the lock, it communicates with a reader built into the car's electronics.

If a thief uses a key without an embedded RFID chip — or one with the wrong identifier — the car will start but will be immobilized in a matter of minutes by the reader.

Large, read/write reusable RFID tags used to track auto parts on assembly lines can cost hundreds of dollars, but tags used for supply chain management systems have dropped to well below $1 per tag. This is still more expensive than a bar-code price tag system, which requires only a laser printer to generate an inexpensive label that contains price and inventory data.

Allied Business Intelligence Inc. in Oyster Bay, N.Y., estimates that some 220 million RFID tags will be shipped this year. Economies of scale coupled with demand will result in shipments jumping to 1.6 billion RFID tags in 2007, according to Allied Business.

But growth, particularly in competition with cheaper bar codes, seems stymied by what Bill Allen, a manager at Texas Instruments Inc.'s RFID division calls "the Holy Grail factor." Once, the Holy Grail for RFID cards was a price point below a dollar. Now, the bar seems to have been lowered to a dime or even a nickel for the kind of throwaway cards used in retail, and reaching that goal is daunting, Allen says. ●

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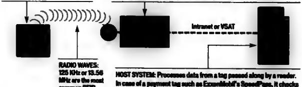
How It Works

RFID TAG: Up to 2,000 bits stored on a memory chip housed in a key fob, button or integrated circuit card. Garment tags can be etched on a substrate, which is then embedded is a paper or plastic tag.

RFID READER: Housed on a PC card module that contains a transmitter, receiver and digital control module and communicates with a PC through an RS232 interface. The module is connected to an antenna that constantly transmits and, when it senses a card, wakes it up, interrogates it, decodes data and passes it on to a host system over a wired intranet or VSAT system used by retailers.



RADIO WAVES: 125 KHz or 13.56 MHz are the most common RFID frequencies.

HOST SYSTEM: Processes data from a tag passed along by a reader. In case of a payment tag such as ExxonMobil's SpeedPass, it checks the customer's credit and then sends authorization back to the gas station to turn on the pump. In an inventory control or supply chain system, the tag data is used to generate an order for new goods.

Crisis prevention in a box.

[illegible]

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Connecting to Patients

A wireless LAN at George Washington University Hospital helps streamline patient registration, reduce data entry and keep doctors in constant communication with one another. By Sami Lais

IN AUGUST, when George Washington University Hospital moved from a cramped old building to an airy new one across the street, the staff gained a new partner in improving patient care — an 11M bit/sec. wireless network.

"It's a whole different paradigm," the hospital's emergency department director, Andrew Robottom, says of the new LAN. "The flow of events is based on patient care as the primary mover, not paperwork."

That's a huge change from most hospitals, where paperwork determines who gets which treatment and where. The changes under way at the hospital are revolutionary not only for the health care industry, but for any service business.

"It's a travesty that there's not a much greater investment in this technology. It's a no-brainer for health care," says Ken Dulaney, mobile and wireless computing analyst at Gartner Inc. in Stamford, Conn. "There is no [industry] with a higher return on investment for the use of mobile and wireless technology."

With new wireless laptops, registration is brought to the patient, says Robottom. "Now, if someone comes into the [emergency room] with chest pains, we can take them right to treatment," he says. Rather than being a separate task, registration is now integrated into the flow of a patient's stay.

The workflow improvements enabled by the wireless LAN extend beyond the emergency room. On the wards, nurses used to record patient data such as temperature, pulse and respiration on paper, then input that data into a computer terminal at a nursing station. Nurses now enter the data directly into a cart-mounted laptop wheeled into patients' rooms.

Broader Availability

A hundred Compaq Armada laptops are available in addition to stationary PCs that run terminal emulation software. In the old building, there was one terminal per floor, says Dr. Katherine Goodrich, assistant professor of medicine at the Washington-based hospital. The new building has seven nursing pods per floor, and each pod has its own terminal. "On the old system, with one computer per ward, people were always fighting for access to a terminal," she says.

Goodrich and other physicians each use a mobile unit on morning rounds. For doctors making decisions on patient care, having the most recent patient records and test results at their fingertips is crucial, Goodrich says. This easy access is also essential in getting patients released from the hospital in a timely manner, she says.

Security of sensitive patient data was a top priority in planning the network, says Mark Fehling, CIO at George Washington. Before gaining access to any data, users are first authenticated and then connected to the virtual LAN via a virtual private network.

Such an implementation "might be a bit of overkill, but people are very concerned about the security of their health records," says Dulaney.

This new workflow process has added some complexity to the staff's normal routine. "Training and adapting to the new technology has been a challenge for our users," Fehling says. To learn the ropes, new nurses are paired with experienced staffers, he explains.

Although training is also offered to doctors and residents, most pick up the essentials from colleagues. "That's what most of us are doing. It's easy," says Chris Entwisle, a medical resident.

The WLAN also supports a radio frequency phone system. Each hospital staffer checks out one of the 90 available handsets when his shift begins and clips it to his belt. Staffers within the hospital can communicate directly with one another without having to go to the nursing stations. This improved communication has made them more efficient, Robottom says.

But perhaps the most eagerly awaited addition to the WLAN is support for personal digital assistants (PDA) on the hospital system, which is expected by year's end.

Residents and doctors will be required to buy PDAs, although many of them already have. But it remains to be seen how the 17-person IT staff will support the devices.

Although investment in mobile technology has lagged in the health care industry, it's starting to accelerate, Dulaney says. "The prices are fairly low, it's reliable, it can be made secure — anyone who says it can't just hasn't looked at the options," she says. ◗

Lais is a Computerworld *contributing writer. Contact her at sami_lais@computerworld.com.*

George Washington University Hospital

- **Location:** Washington
- **Founded:** 1898
- **Status:** Jointly owned and operated by George Washington University in Washington and King of Prussia, Pa.-based Universal Health Services Inc., the nation's third-largest hospital management company.
- **Number of employees:** Almost 800 physicians are affiliated with the hospital. More than 600 are private attending physicians, and 287 also serve as faculty. As part of an academic medical center, the hospital serves as a training site for more than 300 medical and surgical students, residents and fellows.
- **www.gwhospital.com**

SOURCE: GEORGE WASHINGTON UNIVERSITY HOSPITAL

On the wards, nurses enter patient data directly into cart-mounted laptops.

PREPPING FOR PDAs

Read about how George Washington University Hospital's tech staff has worked with doctors to make PDAs useful to track patient care and record data on the run:

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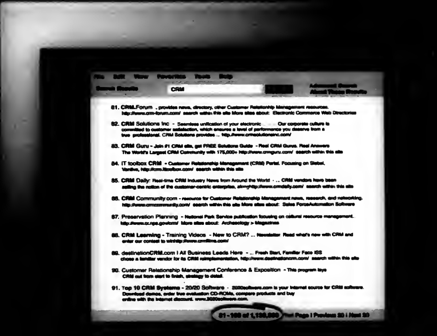

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82. CRM Solutions Inc - Seamless unification of your electronic Our corporate culture is committed to customer satisfaction, which ensures a level of performance you deserve from a true professional. CRM Solutions provides ... http://www.crmsolutionsinc.com/

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84. IT toolbox CRM - Customer Relationship Management (CRM) Portal. Focusing on Siebel, Vantive, http://crm.ittoolbox.com/ search within this site

85. CRM Daily: Real-time CRM Industry News from Around the World - ... CRM vendors have been selling the notion of the customer-centric enterprise, along http://www.crmdaily.com/ search within this site

86. CRM Community.com - resource for Customer Relationship Management news, research, and networking. http://www.crmcommunity.com/ search within this site More sites about: Sales ForceAutomation Software

87. Preservation Planning - National Park Service publication focusing on cultural resource management. http://www.cr.nps.gov/crm/ More sites about: Archaeology > Magazines

88. CRM Learning - Training Videos - New to CRM? ... Newsletter. Read what's new with CRM and enter our contest to win http://www.crmfilms.com/

89. destinationCRM.com | All Business Leads Here - ... Fresh Start, Familiar Face ISS chose a familiar vendor for its CRM reimplementation, http://www.destinationcrm.com/ search within this site

90. Customer Relationship Management Conference & Exposition - This program lays CRM out from start to finish, strategy to detail.

91. Top 10 CRM Systems - 20/20 Software - 2020software.com is your Internet source for CRM software. Download demos, order free evaluation CD-ROMs, compare products and buy online with the Internet discount. www.2020software.com.

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Pragmatism Reigns

Industry observers say wireless ROI will come from sales and field applications — not from overhyped mobile e-commerce.

RICHARD LILLASH

[illegible]

ROI

VAGUE IDEAS that wireless technology would let you conduct e-commerce transactions on an airline flight or stay connected across the continent are giving way to more realistic notions. For example, the most powerful applications may be ones in which the proverbial traveling salesman stops to sync up his wireless device with back-end systems only once a day. That's the pragmatic message from a panel of wireless industry observers assembled for a "virtual roundtable" on wireless strategy. The participants were:

- **Howard Beader**, director of product marketing at the Waltham, Mass., office of SAP America Inc.'s mobile business unit
- **Victoria Burke**, senior marketing manager at SAP AG
- **Dennis Gaughan**, research director at AMR Research Inc. in Boston
- **Mark Guibert**, vice president of brand management at Research In Motion Ltd. in Waterloo, Ontario
- **Chris van Loben Sels**, director of mobile product strategy at PeopleSoft Inc. in Pleasanton, Calif.

Continued on page 50

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Continued from page 48

- **Joe Sims**, managing director of the wireless practice at BearingPoint Inc. (previously KPMG Consulting Inc.) in McLean, Va.

Has wireless lived up to the hype of two years ago?

Sims: It's not a matter of "lived up to it," but a matter of what the current economy can support. The idea of the broad category of mobile enablement as a separate technology or approach — where you were going to be balancing your checkbook on the phone while on an airplane — has gone away from the hype of two years ago. That's just not going to happen right now.

What will happen is that people will extend the infrastructure they have invested in over the last several years to where their people are, because their people are increasingly mobile. We're looking at it as a channel, not as a separate technology.

Gulbert: I think there was an overblown sense of expectation [for] wireless e-commerce. In the B2B space, where the use of wireless is a productivity tool, I think the answer is a resounding yes, it has lived up to the expectation. The difference is that I don't think there was hype around those expectations two years ago. The hype that I saw was more focused on the e-commerce side.

Ultimately, the lesson that people learned, which is always straightforward in hindsight, is that a mobile device is not just a little PC. There are different issues that need to be addressed. From an infrastructure standpoint, you're dealing with less bandwidth, networks that operate at different bit rates. You're working with milliwatts for power supply, limited screen size, so the application needs to embrace these limitations. I think during that period of hype, a common [phrase] heard was "We're entering the post-PC era," which was inaccurate. What was interesting was watching companies that believed we were entering the post-PC era using PC-era strategies to go to market. Wireless is fundamentally different.

Wireless ROI Checklist

Tips for a successful wireless project:

- **Plan for "small sips" of information** because of wireless bandwidth limitations.
- **Focus on just-in-time information needs.** Any place where you find latency tied to mobility, you can address the problem with wireless. For example, in field service, billing one day sooner has a direct bottom-line impact.
- **Focus on reference information.** Use devices that keep and process data; this helps mitigate the effects of poor wireless coverage.
- **Require a return-on-investment calculation** in vendors' proposals; make sure it's measurable.
- **Work with vendors that will provide** an estimate and a limit on time and cost.

SOURCE: DENNIS GAUGHAN, RESEARCH DIRECTOR, AMR RESEARCH INC., BOSTON

Burke: The reality is that a mobile solution needs to be able to work in disconnected mode. That can be anywhere from 100% disconnected — where they're just syncing up once a day when they are in a fixed location like their home office or their truck — up to 99% connected, where you are pretty much online as long as you have a connection. You still have the ability to have some data on the device so you don't lose anything. You don't stop your business because you have to go to the next block to get a network connection.

Where do you see the return on investment coming from wireless technologies?

Chris van Loben Sels: Sales and field service. That's where we've seen immediate opportunities to unlock value. Salespeople are almost never at their desks, yet they have to be able to review information before a call. The same for the field service personnel. For them, there is an added incentive: completing a sales call with remote entries. Bills which might drop through the cracks now get into the system. There's a direct benefit to the bottom line.

Gaughan: Business-to-employee applications. That's where we've seen demonstrated ROI and productivity increases. If you take some of the early successful [applications], they're in the areas such as sales force automation and field force automation. Delivering information where it's needed. These are also areas in which delays and miscommunications occur often and have a detrimental effect on the bottom line.

But isn't bandwidth and network coverage a constraining factor in these areas?

Gaughan: Network coverage remains an issue. But if you design the application so it requires small sips of data vs. huge files, low bandwidth isn't an insurmountable problem. Also, don't forget, one does not have to be in wireless mode all the time. With a cradle or Internet connection at the end or beginning of the day, wireless networks for [ad hoc] updates are perfectly acceptable. I'd like to stress that implicit in this model is a device which is more than a handset, in that it should be able to store and process data.

Which industries or operations are starting to adopt wireless applications?

Gulbert: There are vertical cuts at this and more sectoral cuts. CRM is not so much an industry but is an application area with a high degree of interest. Extending [sales force] applications to a BlackBerry is a priority for a lot of folks. In terms of sectors, we're seeing a strong uptake in the legal sector, the financial sector and other vertical areas like real estate.

What's common across a lot of these vertical sectors is a high focus on customer service. To find the ROI, you're either going to have to reduce cost, or create competitive advantage, or increase customer service, or some degree of all of those things.

It's all about defining in a particular sector or application area what is the information that a mobile user will value and will pay for. Stay away from approaches that will only browse [the Web] or replicate their PC.

Sims: Any [operations] that have a mobile workforce, like the insurance industry, government, health care, sales force automation and field service support. I haven't seen as much uptake on CRM as people talk about, but it is definitely there.

Beader: One of the other things we are seeing a great need for is a mobile time-and-travel solution. Consultants in the field have to enter their expenses, for example, and that has to integrate easily into the back-end systems. Some of the larger consulting firms are using this with all of their consultants, ensuring better billing and employee reimbursement.

Is the concern about security holding back the wireless industry?

Gaughan: Last year, very much so, wireless LANs especially. There were highly publicized attacks on 802.11 standards. Many companies cracked down hard on the Wi-Fi applications; others moved to virtual private networks. But technology is getting pretty strong in this area, as is our knowledge of firewalls and other preventative measures. Full-strength cryptography is available.

Beader: I'm hearing a lot of talk about wireless security, but I haven't seen many customers, outside of the [Defense Department], deploying a fully encrypted application on a mobile device. That would tend to slow down the device's capability. People are using authorization and pass-code capabilities, but I haven't seen it go the step further. As devices improve processing power, I expect we'll see more.

Gulbert: That's probably No. 1 on a CIO's mind when it comes to wireless. Ask the tough questions about security. It's not enough for a vendor to say, "Trust me."

What's the timeline for wireless adoption now?

Sims: The big unknown is the health of the carriers. I would hope that the telecom industry, in particular wireless, would [turn the] corner in 12 to 18 months. I don't think it's six months. If it's 12 months, a lot of the things that people are investing in now will show their benefits in the second quarter next year. ◆

'PEOPLE HAVE GADGETITIS'

For a complete transcript of this report, including Joe Sims' observation about "gadgetitis," visit:

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EMPOWERING THE INTERNET GENERATION

Wireless Wizards

What you need to do to land a job and keep your skills fresh in the wireless field. By Sharon J. Watson

CAREERS

LAST YEAR, developing wireless applications was considered an esoteric art. Potential industry standards such as the Wireless Application Protocol required specialized knowledge and treated wireless programming as unique. Recruiters boasted of snagging six-figure salaries and large signing bonuses for those few individuals who could tackle wireless projects.

In barely the space of a year, all that changed. Wireless applications are now being written with easily learned Java variants and popular Web content development tools.

"Wireless used to be this black-magic area," says Sergei Krupenin, senior product marketing manager at Access Systems America Inc., which creates browsers for wireless devices. "But now it's merging with mainstream Internet technology."

For typical programmers, that means wireless skills are important but no longer bring pots of gold. And job competition in the wireless world is stiff. Most employers say they simply use their current programmers on wireless projects, training them as needed. That's making job openings scarce.

"It's hard to break in cold right now," says Daniel Zucker, director of technology at Fremont, Calif.-based Access Systems America. "Recommendations are critical; who you know is key. Networking is the top method of getting a job."

Skills

The consensus among industry experts is that any application developer with solid programming skills, experience with C, C++ or Java and an understanding of TCP/IP can quickly move to wireless programming. Key skills there include Java 2 Micro Edition (J2ME) and, if it gains popularity, Brew from Qualcomm Inc. in San Diego. Database, application server, messaging and Web services skills in areas such as XML are also valuable.

Experienced programmers say the big transition is learning the difference between ordinary programming and developing applications for wireless devices, which have smaller screens and less memory and processing power than computers. What's also different is that these devices must interoperate with wireless networks that have significant data transfer constraints and inevitable connection losses.

Training

Employers say no particular wireless certifications have yet caught their eye. Most send developers to wireless industry and developer conferences, such as those for J2ME and Bluetooth, for real-world insight.

Many wireless development tool kits are available free on the Web, so a developer could download one and actually write — and market — an application via a Web server. "You can be an independent publisher of applications and sell them," says Andy Choi, a senior software engineer at France Telecom R&D in San Francisco.

Salary

These days, salaries for wireless application developers aren't significantly different from those of other programmers. They also vary by region.

For example, in Western states such as Utah, salaries could range from $70,000 to $120,000, says Blair Buxton, vice president and chief technology officer at Billerica, Mass.-based McCracken Financial Software Inc. Buxton, a specialist in wireless enterprise applications, works at the Salt Lake City office of the GMAC Commercial Mortgage Corp. subsidiary.

The national median salary for experienced programmers is about $73,000, and it's almost $88,000 for senior software engineers, according to Vancouver, Wash.-based Salaryexpert.com. ■

Watson (sjwatson@interaccess.com) is a freelance writer in Chicago.

NEW CAREER AVENUE?

Powerful mobile devices and enterprise adoption of Web services are expected to create new opportunities for application developers:

QuickLink 34558
www.computerworld.com

Employer Spotlight

- **Name:** SHEILA DAVIS
- **Title:** Manager of IT, PowerPad project
- **Employer:** FedEx Corp., s Memphis-based international express delivery company
- **Number of IT professionals:** 5,000-plus
- **30-second résumé:** Davis joined FedEx eight years ago after spending five years on the technical staff at Morristown, N.J.-based Telcordia Technologies Inc. (formerly known as Bellcore). She started in FedEx's messaging infrastructure group, then transferred into application development. Davis moved into management two years ago, working with Java and WebLogic servers. She now manages the team that's creating applications for a new wireless device, called PowerPad, for FedEx's couriers.
- **Skills boost:** "Wireless doesn't have a real big learning curve," says Davis. FedEx sends programmers for specific training as needed. The developers generally rely on their basic programming backgrounds as they create object-oriented applications for the PowerPad. Davis says she's learning to work with development, testing and debugging tools that are less mature than those available for client/server development.

Davis says she has especially enjoyed working with the PowerPad's Bluetooth interfaces to phones and printers. "It's nice getting into new wireless technology," she says. The Bluetooth capability will allow couriers to transmit data without docking their devices in their trucks.

Davis says she expects wireless programming opportunities to grow as the cost of personal digital assistants drops, but she doesn't foresee wireless devices becoming a specialized area. "In my own group, some [IT workers] have said they don't want to do only communications-interface work," Davis says.

Instead, she envisions wireless programming skills as additional layers on top of core skills such as C++ and Java. Developers with such combinations of skills can move into project management or systems architecture analysis, troubleshooting wireless projects, Davis says.

Wireless projects also bring developers closer to business users, says Winn Stephenson, senior vice president of IT at FedEx. "Wireless applications solve a business need, so you're on the front line, not in the bowels of the shop," he says. Thus, collaborative and listening skills are key. "You must understand what the customer needs in response times," says Davis. "We can develop it, but if the performance is slow, they won't want to live with it."

- Sharon J. Watson

TAMARA REYNOLDS

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The Next Chapter

Predictions: The wireless life will include cellular refrigerators, privacy masking and roll-up displays.

■ PEER-TO-PEER WIRELESS

By 2005, the typical cell phone will be indistinguishable from a PDA, and at least one U.S. carrier will support both 802.11 and 2.5G or 3G on the same devices.

As an unexpected consequence of this dual-band support, we'll see some instances of bottom-up networks, where devices connect directly with each other on a peer-to-peer basis. This will be a viable alternative to the current monopoly of carriers' antennas.

■ *John Jordan, principal, office of the chief technologist, Cap Gemini Ernst & Young U.S. LLC, Cambridge, Mass.*

■ CELLULAR REFRIGERATORS

"Can I get it with side-by-side doors, an ice dispenser and a GSM connection in harvest gold?"

There's always been a lot of talk about networking home appliances, but little action due to the difficulties of pulling wire or making networking run over power lines. But inexpensive networking running over public cellular networks will finally make possible next-generation applications, like a refrigerator that hosts a Web site listing what groceries a family needs and accepts bids from the local stores that want their business.

And, of course, a screen on a refrigerator represents an amazing advertising opportunity for Duncan Hines, Kraft and every other food company. Retailer Fry's Electronics already has a refrigerator with an RJ45 jack installed. Cellular is just around the corner.

■ *Sheldon Laube, chairman, CenterBeam Inc., Santa Clara, Calif.*

■ INDUSTRY SHAKEOUT

Within two years, one of the major PDA manufacturers will be out of business; Nokia will win the software battle with Microsoft for dominance of the mobile platform; and the monopolistic U.S. carriers will try very hard to squash 802.11 (but a couple of large technology companies will come to its rescue).

■ *Amy Francetic, wireless analyst and producer of DemoMobile, IDG Executive Forums, San Mateo, Calif.*

■ PRIVACY CLOAKING

As location-based services proliferate across the wireless infrastructure, the hot software play will be "masking" services that hide who you are unless the ping is from a recognized source.

■ *John Parkinson, chief technologist, Cap Gemini Ernst & Young U.S. LLC, Rosemont, Ill.*

■ DISASTER RECOVERY VIA PDA

Wireless devices will revolutionize how companies build, distribute and invoke their business continuity and disaster recovery plans. For years, those plans have been immobile, existing in hard-copy form or on PCs. Now, with the ability to download status and individual action plans to handheld devices such as PDAs or cell phones, recovery teams will be more proactive and in better touch, wherever they are.

■ *John Jackson, partner, Tatum CIO Partners LLP, Chicago*

■ THIS DATA WILL SELF-DESTRUCT

Wireless devices developed over the next two to four years will include technologies such as GPS that will allow them to report their location when lost or stolen and provide an account of their current condition — what mode they are operating in and/or if they are damaged in some way. They'll also give the device owner the option to remotely secure or delete sensitive information.

■ *David K. Black, senior manager of security technologies, Accenture Ltd., Washington*

■ WALK AROUND, OR SIT DOWN?

In the next few years, I see largely separate roles for two distinct wireless technologies. 3G cellular services will emerge to provide the coverage for walk-around applications on a 3G cell phone or wireless PDA terminal — for example, text messages, checking e-mail and downloading location-specific information.

For sit-down applications at an airport, library or cafe, 802.11b wireless LAN technology provides greater data bandwidth and economy than cellular data services for more robust Web usage on wireless PDAs and notebook computers. Users will have the advantage of using the same 802.11b-enabled device in the wireless office, at home and at outside locations.

■ *Howard Blum, professor of computer science, Pace University, New York*

■ ROLL-UP DISPLAYS

The shrinking size of cell-phone handsets and their tiny displays will make it difficult for them to be used to access Web content. If Bluetooth is successful, it will enable handsets to act as wireless modems for other mobile computing devices such as PDAs. Eventually, new display technologies such as organic LEDs will make it possible to carry around larger displays in a convenient size.

For example, displays might roll up into something the size of a ballpoint pen when not in use, but they aren't likely to be in widespread use until mid-decade at the earliest.

■ *Eric M. Berg, technology forecaster, PricewaterhouseCoopers, Menlo Park, Calif.*

MORE PREDICTIONS ONLINE

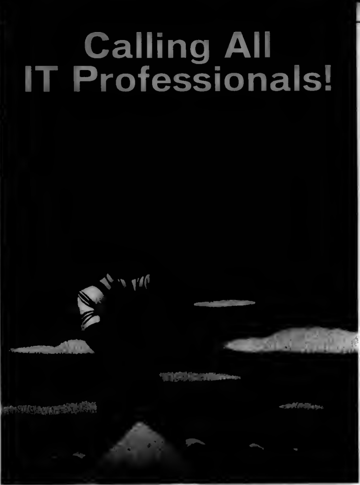
Implanted wireless devices will improve health care and life expectancy, experts say. Hybrid PDA/phones may even take the place of credit cards and become automatic transmitters for recorded personal preferences in food or room temperature:

QuickLink 34371
www.computerworld.com

Wireless Power Pad

Tired of that tangle of electrical cords needed to power up various mobile devices? MobileWise Inc. in Los Angeles has developed an "electricity base" – it looks like a place mat or desk blotter – with nubs that provide power to devices placed on top of it. It works only with devices that have a special chip or adapter that draws power from the pad.

– *Matt Berger, IDG News Service*



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- SAP/R3, ABAP/4 or FICO or MM & SD
- Oracle Applications & Tools
- Lotus Notes Developer
- UNIX System Administrator
- UNIX, C, C++, Visual C++, CORBA, OOD or OOPS
- WinNT
- Sybase, Access or SQL server
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Account Executives, Account Managers and Business Development

Positions available.

Some positions require a Bachelor's degree, others a Master's degree. We also accept the equivalent of the degree in education and experience.

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FPL Group, Inc., and its subsidiaries (Florida Power & Light, FPL Energy and FPL FiberNet) seek qualified applicants for the following positions.

Technology Consultant:
Provide technical leadership and consulting services. Investigate technical complex software/hardware problems and coordinate problem resolutions. Bachelor's Degree or Equivalent in Computer Science, Engineering or related field with relevant experience. Position located in Juno Beach, Florida

Senior Programmer Analyst:
Analyze, design, develop, test, debug, implement, maintain and/or enhance existing or new systems in a reliable and efficient manner. Bachelor's Degree or Equivalent in Computer Science, Engineering or related field with three years experience in the position or in the alternative, five years of experience in the position or related positions relevant experience. Position located in Juno Beach, Florida

Programmer Analyst:
Design, test, implement and support modifications to existing or new systems. Monitor performance and recommend actions to keep systems running effectively and efficiently. Bachelor's Degree or Equivalent in Computer Science, Engineering or related field with two years experience in the position or, in the alternative, four years of experience in the position or related positions. Position located in Miami, Florida

Send Resumes to FPL, Recruiting Department, 700 Universe Boulevard Juno Beach, Florida 33408-0420 or internet-resumes@fpl.com. Please include reference code: ANTECHGC

At Quest Diagnostics Incorporated, we've become the nation's most respected name in diagnostic testing by focusing on integrity, innovation and quality. We have created an environment where dedicated professionals can learn, grow and advance - all in an atmosphere of pride.

We are currently seeking an Applications Development Manager to serve as the lead developer for complex software applications using new technologies such as Object Oriented processes, web-based languages and tools, web application servers, 3-tier architectures, transaction processors, SQL, PL/SQL, JSP Servlets, JMS, SOAP, ASP, DHTML, Active X controls, XML and EJB. Plan team projects through guidance and leadership to technical staff to meet full s/w development lifecycle activities. Represent Quest to clients and vendors, contribute and enhance the technical aspects of a prototype or research project, and be responsible for implementing and designing methodologies using object-oriented processes and tools.

Requires a Bachelor's degree in Computer Science or a related field, plus 6 years experience in software development, or 8 years experience in software development. Rational 4+ years supervisory or team lead experience. Experience in Object-oriented technology, UML, web/internet development; JAVA DATASTAGE, COGNOS, EJB, and XML-enabled data modeling applications.

Please add source code: UKAD1202 and forward your resume to: Email: questdiag@alexus.com , Fax: 877-589-8942 or mail to: Quest Diagnostics Incorporated, PO Box 3597, Scranton PA 18505.

WEB DEVELOPER

LYNX Services, a wholly-owned subsidiary of PPG Industries, is a national leader of automotive glass claims management business within the insurance industry with claims call centers in Fort Myers, FL and Paducah, KY. LYNX is expanding its business to encompass Auto Physical Damage (APD) claims management, and is building a "state-of-the-art" claims management application to support the claims operations unit. The WEB DEVELOPER work location is 6351 Bayshore Road, Suite 18, Fort Myers, FL. Salary is competitive, benefits package included. Requirements include: a minimum of 4 years experience designing and developing web-based applications. Expertise in programming ASP, COM, COM+, multi-tier applications and also with XML technologies, XSLT, XSD/XDR, XPATH and XML databases. Highly proficient with HTML, JavaScript, VBScript, and SQL Server programming. A Bachelor's degree in Computer Science or related field is required. Must demonstrate the ability to work in a team environment as well as individually. Good written and oral communication skills are preferred. Willingness to travel (minimal). Visual Basic, Visual Interdev, Remote Scripting Library, or OpenXML/Updategrams experience a plus. Send resumes to: Marisa Pompeo, Human Resources, PPG INDUSTRIES, INC. LYNX Services - Web Developer, One PPG Place, Pittsburgh, PA 15272; Fax 412/434-4301. EOE

B.S./equiv in Info. Syst. Tech or related field + 5 yrs. exp developing & supporting enterprise level Internet, Intranet, & client server apps using VB, ADO/RDO/DAO, COM, DCOM, ASP, IIS, Java Script, VB Script, SQL Server, SQL, Stored Procs, MS Access, HTML, Crystal Reports, Visual Interdev, Visual Source Safe, Windows NT/2000. W/2 yrs. exp supporting apps providing secured data exchange btwn servers, mainframes, & trading partners using FTP, SFTP, PGP, XML, XSL, IBM DB2 Connect, & IBM PCOMM. Also 1 yr exp in optimizing & tuning such apps where data transfers can exceed 800k records & 300 MB in size; in using Homesite, Dream weaver, Fireworks/graphic tools, MS Office, MS Project, & Visio; in developing systems that meet complex business rules; & in Rational Rose, Unix, & Oracle environments. Must have MCSD certification with VB 6.0 or above. Exp. may be gained concurrently. Resumes to: Don Spatler, GA DMVS, 1200 Tradeport Blvd., Ste. 1158, Hapeville, GA 30354

Seeking qualified applicants for the following positions in Colorado Springs, CO: Senior Technical Analyst. Research, evaluate, implement and coordinate changes to large, complex computer systems/applications. Requirements: Bachelor's degree* in computer science, math, engineering or related field plus 8 years of experience in systems/applications development, including programming. Experience with: distributed systems (C++ or Java); Sun Solaris; and Oracle also required. *Master's degree in appropriate field will offset 2 years of general experience. Submit resumes to Recruiting, FedEx Corporate Services, 350 Spectrum Loop, Colorado Springs, CO 80921. EOE M/F/D/V

Programmer Analyst: perform object oriented analysis and design using design patterns; design, develop, and test programs using JAVA and J2EE; implement solutions for Web Security using SSL. Req. MS or equivalent in CS or EE with 3 years exp. in job offered or as System Engineer or Assistant System Engineer. Must be proficient in OO, SSL, J2EE, RDBMS/Object Database and XML. 40hr/wk, 9-5. Java Certification required. $75,000/yr. Send resume to BCA at 2160 Satellite Blvd., Suite 325, Duluth, GA 30097

Software Engineers needed. Seeking candidates possessing MS/BS or equiv. and/or rel. work experience. Duties include: Design, develop & implement IT workflow solutions for the healthcare industry. Write software packages & tools and provide technical support to client websites. Part of the req. rel. work exp. must include 1 year working with C++, Visual Basic & JAVA. Mail res. & ref. to: Siemens Medical Systems, 51 Valley Stream Pkwy., Attn: Mailcode T06, Malvern, PA 19355.

Web Designer-needed to maintain graphic quality of web sites and manage the creation and development of support graphics, redesign and branding as well as perform graphic production for material including art and copy layouts. Competitive salary and benefits. Fax 860-766-2425 e-mail Kieren.Portley@espn.com or send your resume to: ESPN, HR Dept-KP, ESPN Plaza, Bristol, CT 06010. EOE/AA/M/F/D/V

Computer Consulting Co seeks programmer analysts & database administrators. Bachelor's +2yrs IT exp. Resume to Upp Business Systems, 3075 Highland Parkway, Downers Grove, IL 60515.

Sr DBA lead teams to perform Oracle database admin. on Sun Solaris, UNIX, Linux, Windows NT; design/develop client server appls using Oracle, PL/SQL, Dev 2000, Crystal Reports; perform data migration; design/review logical/physical data model using ERWin; setup & maintain OLAP databases on Oracle & SQL Server using replication tech; propose/implement methodologies/best practices. Require M.S or foreign equiv in CS or Buss Admin with 2 yrs exp in IT. High salary. F/T. Travel reqd. Resumes to HR, ChannelWave Software Inc., One Kendall Square, Suite 200 Cambridge, MA 02139

Programmer Analyst II

Database design, implementation, data mining. Web design, web application programming. Project design, implementation, management. ERP, CRM implementation & customizing for HR, Finance. Online support system development. M.S. in CS or rel. & 1 yr exp. in above pos. or rel. w/exp. in: C++, Visual Basic, Java, ASP, XML, Perl, PHP, HTML, DHTML, JavaScript, VBScript, Unix, Oracle, SQL Server, Mysql, IIS, Apache, ERP, CRM. 40.0 hr/wk, 9-5. Send resume to: Linda Harris, Recruiter, Interland.com, Inc., 303 Peachtree Center Ave., Ste. 500, Atlanta, GA 30303

Software Analyst (Oceanport, NJ) - Analyze user requirements, procedures, & problems to improve existing systems. Must have a Bach. Deg. in Comp. Sci., Eng'g or related field, & 2 yrs. exp. in the job offered or in a software quality or testing occupation, & exp. working in Java environment, exp. w/WinRunner, Load Runner, & Test Director testing tools. EOE. Resume to CommVault Systems, Inc. thoffman@commvaultsystems.com

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Software Analyst (Oceanport, NJ) - Analyze user requirements, procedures, & problems to improve existing system. Must have a Bach. Deg. in Comp. Sci., Eng'g or related field, & 2 yrs. exp. in the job offered or in a software quality assurance occupation & exp. w/ UNIX & SQL. EOE. Resume to CommVault Systems, Inc. thoffman@commvaultsystems.com

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Programmer Analyst needed to develop, test and implement systems for on-air product. Competitive salary and benefits. Fax 860-766-2425, e-mail Kieren.Portley@espn.com or send your resume, to: ESPN, HR Dept-KP, ESPN Plaza, Bristol, CT 06010. EOE/AA/M/F/D/V

SAP Consultant - Waltham, MA. Requires ABAP Module with experience in Workflow, SAPscript, ALE, EDI, Idoc. Strong communication skills are a must plus a willingness to travel 100% within US. Send resume ATT: HR Department, Plaut Consulting, Inc., 1050 Winter Street, Suite 2300, Waltham, MA 02451.
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Software Engineer
University Corporation for Atmospheric Research (UCAR) seeks a Software Engineer to work in Boulder, CO and other unanticipated job sites in the US. Engage in full life cycle development of meteorological software used to study climate change. Requires a Master's in meteorology or computer science, 2 years of software development of meteorological software on super computers using shared memory and distributed system techniques, and 2 years utilizing weather prediction model tools, and Perl Message Passing Programming (MPI), C/C++. Respond via surface mail only to Lara Cervantes, UCAR, PO Box 3000, Boulder, CO 80307-8709, and refer to #0060WY

McData Corporation has an opening in our Broomfield, CO office for a Sr Unix Administrator to serve as Unix/NT system administrator and Oracle database administrator for a company that produces enterprise switching solutions. Successful candidates will have 5 yrs. exp as a Unix Administrator supporting Solaris 2.6/7/8, HP-UX 7/8/10.20, AIX 4.x and 5 yrs. exp as an Oracle DBA supporting Oracle RDBMS versions 7 & 8. Candidates must also have working knowledge of Linux, FreeBSD, Windows 2000, Sym-matrix and Clarion storage, Veritas Net Backup, Veritas Volume Manager, Perl, Apache DBI/DBD and Korn Shell. Interested candidates should send resumes to Pete Whittle, McData Corporation, 380 Interlocken Crescent, Broomfield, CO 80021

Software Engineer/Senior (Multiple Openings): Bachelor's or Master's degree in related field plus 6 months to 2 yrs. of exp required depending on position. Research, analyze design develop, test, diagnose debug business/web applications using some of the following: EJB, BEA WEB LOGIC APPLICATION SERVER, WEBSPHERE, JAVA, SERVLETS, JSP, ASP, JAVASCRIPT, JDBC, RMI, HTML, DB2, POWER BUILDER, UML, RATIONAL ROSE, ORACLE, SYBASE, UML, C/C++, SAP, MS VISUAL BASIC, MS SQL SERVER, MS WINDOWS NT, UNIX, & SUN SOLARIS. May require travel to client sites. Top $$ + bnfts. Mail resume to Yash Technologies, Inc. 605 17th Ave., Suite #1, East Moline, IL 61244

COMPUTERS
EpicEdge, an e-business solutions company is seeking an e-commerce application developer at its Austin, TX office with experience in Websphere JSEE (java standard edition) v 3.5 or higher (preferably on OS/390 platform). MS with 3/yrs exp or BS with 5/yrs exp. EpicEdge offers a competitive salary with great benefits. Respond by resume to PB/HR, 5508 Highway 290 West, #300, Austin, TX 78735

ESTS IV - Web Technology: Lead a team to provide conceptual and technical solutions to complex business or technical problems. Provide technical expertise in operating systems in the telecommunications industry. Design and develop business process automation systems for the telecommunications industry on client-server architecture using object-oriented techniques and software development utilizing C/C++, Visual Basic, Oracle, Windows NT and Unix. Master's degree or equivalent in Computer Science or Engineering required. One year of experience in the job offered or one year of experience as Engineer/Programmer/Analyst required. One year of progressive experience must include experience with C/C++, Visual Basic, Oracle, Windows NT and Unix. The employer will accept a Bachelor's degree plus five years of post-Bachelor's progressive experience as equivalent to a Master's degree plus one year of experience. $74,000/year, plus usual corporate benefits. 9-5, 40 hrs./wk. Send two copies of resume and copy of advertisement to New Hampshire Employment Security, Job Order# 2003-084, P.O. Box 989, Concord, NH 03302-0989. Must have proof of legal authorization to work in the United States

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Seeking qualified applicants for the following positions in Memphis, TN: Senior Systems Planning Analyst. Serve as a project/team leader. Evaluate systems requirements and develop system configurations to ensure corporate objectives are met. Plan, design, analyze, develop and implement computer systems. Requirements: Bachelor's degree* in computer science, MIS, engineering, applied science or related field plus 5 years of experience in computer systems development. Experience with Visual Basic, SQL Server, MVS/TSO mainframe development/interfacing with server applications also required. *Master's degree in appropriate field will offset 2 years of general experience. Submit resumes to Chris Gibney, Federal Express Corporation, 2600 Nonconnah, Suite 191, Memphis, TN 38132. EOE M/F/D/V

NET2S

NET2S is a leading international Consulting and Engineering firm specializing in communications technologies. We are presently seeking to fill the following positions.

Business Analyst (NYC)

Develop and implement marketing strategies. Manage sales life cycle including client presentations and negotiations. Oversee project management including deployment and roll out. Co-manage project center.

Must possess excellent communication skills as and. All positions require BS/MS degree with a minimum of 2 to 3 years of experience in the field. Must possess excellent communication skills as well.

NET2S, 82 Wall Street Suite 400, New York, NY 10005, Fax: (212) 279-1960; Phone (212) 279-6565, or Email: jobus-ny@net2s.com

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IT firm in NY looking for a Sr. Software Developer, Strong in J2EE, Weblogic, Oracle, relational database, Data modeling, UML, CVS. BS in computer science or related field with 2 yrs related exper. Send resume to jobs@boylesoftware.com

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Sr Software Engineer, Portsmouth, NH: Working in high-paced start-up envrmt using exp w/embedded s/ware systm dvlpmt on LINUX platform, dsgn & dvlp LINUX operating systm based firmware & s/ware that will enable Co's next generation protocol agnostic Fibre Channel & Ethernet switch that is for intended use w/in Storage Area Network (SAN). Work individually, as well as w/in team that in implmtg stndrds based Fibre Channel switch services (FC-SW2 & FC-GS3) & LINUX OS functionality. Solutions to be dvlpd must be thoroughly tested to meet 5 nines (99.999%) reliability. Dsgn & dvlp firmware/s/ware that will allow retrieval of target images using stndrd protocols (DHCP, TFTP) & that will allow Fibre Channel services timers to be implmtd as part of FC-GS3 standard, using exp w/LINUX kernel functionality as and as dsgn exp w/Pthreads (POSIX threads). Using exp w/Object Oriented dsgn & dvlpmt using C++, & exp w/C prgmg lang, dsgn & dvlp firmware that will allow configuration & downloading of Field Programmable Gate Arrays. Implmt High Availability Middleware & Virtual IP multi MAC functionality in order to allow targets to failover without reconfiguration of host mgmt systms. Dvlp & implmt API for NVRAM access to allow messages to be stored locally on an embedded systm running LINUX OS. Support scheduler algorithm dvlpmt team by dvlpng test routines (using C, C++ or any other suitable lang) to test functionality of crossover-switch's switching algorithm. Dvlp InstallShield based installation prgms for Co's products that run on MS Win using exp w/dvlpng installation scripts/tools. Provide assistance in testing s/ware for security holes & vulnerabilities using exp w/Network Security & Intrusion Detection. Spvr: Principal S/ware Engr. $78K/yr, 40 hr/wk, 8a-6p. Educ: Masters or foreign equiv in Comp Sci, Engg, Electronics or related tech'l field. Exp: 3 yrs in job offd or 3 yrs in pos involving s/ware dsgn &/or dvlpmt using C &/or C++; within 3 yrs of exp, must also have 2 yrs exp w/Embedded s/ware systm dvlpmt on LINUX platform; within 3 yrs exp, must also have 1 yr exp w/following: Multithreaded modules or applics using POSIX threads (Pthreads), Dvlpg Installation Scripts/Tools using InstallShield, Network Security & Intrusion Detection, & Object Oriented dsgn & dvlpmt using C++ (Exp may be gained concurrently). Applicants must send 2 copies of resume/ltrs of applic to JO#2003-073, P.O. Box 989, Concord, NH 03302-0989

IT Technical Support Specialist II

Providing troubleshooting of hardware/software problems; constructing & maintaining dynamic web pages; providing server support for Windows NT, 2000 platforms; updating existing software; participating in various cross-functional projects; applications development; providing on-call support for critical applications problems; providing support of specialized systems maintained by the Business & Finance division; maintaining dynamic web pages using XML/ASP; providing Point of Sale Support. B.S. in CS or rel w/ability to use C, C++, HTML, Unix, WinNT 4.0, Win2000, VB. Must have certificates: A+ Certified Professional, & Peoplesoft Query End-User Training Certificate, and be proficient in Cougar Mountain, Griffin, Diebold etc., Nebraska Bookstore. 40.0 rel wk. 8-5. Send resume to Stephanie Rooks, HR Director, State University of West Georgia, 1601 Maple Street, Carrollton, GA 30118.

Kanbay
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SOFTWARE ENGINEER to provide on-site consultancy in analysis, design, development, implementation, customization and maintenance of B2B client/server distributed and web based application software using Microsoft and Sun technologies, WebMethods, Trading Network, Java, JSP, Java Servlets, SQL Server, Windows and Sun Solaris. Require B.S. (or equivalent) in Computer Science/Electronics Engineering and four years experience in the job offered or any experience providing skills in described duties. 40% travel to client locations within the United States required. Competitive salary and benefits, 8 am to 5 pm, M-F. Apply with resume to: Vice President, Frontline Consulting Services, Inc., 6701 Mallard Creek Road, Charlotte, NC 28262.

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Information Technology

Clinical Database Programmer

GlaxoSmithKline, an international producer of pharmaceuticals and consumer healthcare products, is seeking an individual to serve as Clinical Database Programmer at its research and development facility in Parsippany, New Jersey. Principal duties are to provide database management and programming skills for clinical trial database systems utilizing Oracle 8i, SQL, SQL*Plus and PL/SQL, review protocols for proper data capture, develop edit checks to be performed on a clinical database, and develop methodologies and relevant documentation to comply with Standard Operating Procedures (SOPs) and Good Clinical Practices (GCP), International Conference on Harmonisation (ICH) and Federal Drug Administration (FDA) validation requirements.

Position requirements are a B.S. in Computer Science, Electronics and Communications Engineering or a related discipline and 2 years experience in the job offered or 2 years of experience in the related occupation of Clinical Software Engineer including experience in (i) designing clinical databases, (ii) managing clinical databases, (iii) developing edit check procedure to ensure accuracy and consistency of clinical data; and (iv) developing and implementing systems to automate data quality process. Must have demonstrated working knowledge of GCP/ICH and FDA validation requirements including Electronic signatures (Title 21 CFR, Part 11) and MedDRA dictionary for coding Adverse Events and Medical Conditions. must also be proficient in the use of Oracle 8i, SQL, SQL*Plus and PL/SQL.

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Systems Analyst/Technologist Needed. Seeking qual. candidates possessing a BS or equiv. and/or rel. work exp. Duties include: analzye and develop computer software systems in a business environment, implement software solutions. Work w/ java, c++, ASP and Perl. Must be willing to travel and relocate. Mail res. and ref. to Razorfish, Inc., 169 11th St. San Francisco, CA 94103. ATTN: HR

Tech Systems Inc. is hiring all levels of Programmers, Programmer Analysts & Software Engs. Software consultants. Send resumes to 37481 Maple Street, Suite L, Fremont, CA-94536. Will be placed at unanticipated client sites nationwide.

COMPUTER/IT
Senior SAP System Security Analyst (multiple openings) (Troy, MI). Req. a Bach.'s degree (or equiv. foreign educ.) in computer science, business admin., or management info. systems, and 1 yr. of exp. in the job offered or 1 yr. of exp. in the development and configuration of security features of SAP R/3 modules (version 3.1H or higher). All stated exp. must involve the following: SAP R/3 security development and configuration using SAP profile generator; transport of security developments util. CTS (Correction and Transport System) change management, & development and configuration of three of the following SAP R/3 modules: Human Resources (HR), Materials Management (MM), Financial & Controlling (FICO), and Production Planning (PP). Exp. must include one full lifecycle of SAP R/3 security implementation. In lieu of a Bach.'s degree (or equiv. foreign educ.), will accept 2 additional yrs. of stated exp. Engage in SAP R/3 security implementation over a full lifecycle. Develop and configure security features of SAP R/3 modules (version 3.1H or higher) including HR, MM, FICO and PP modules. Full-time position. Apply with resume to LaWanda White, Delphi Corporation, 5825 Delphi Dr., Troy, MI 48098. EOE. Reference #0109 when applying.

COMPUTER/IT
RICE Technical Team Lead (Troy, MI). Req. a Bachelor's degree (or equiv. foreign educ.) in computer science, info. systems, or an engineering field, and 2 years' exp. in the job offered or 2 years' exp. in the development, implementation, and support of SAP R/3 Sales and Distribution (S&D), Materials Management (MM), and Production Planning (PP) modules using ABAP/4. All stated exp. must involve: configuration, set-up, and customization of SAP R/3 Auto (version 2.0 or higher); interface of SAP R/3 with CrossWorlds and Mercator; use and configuration of ALE; and performance tuning of SAP R/3 transactions and programs. Must have led one full life-cycle of SAP R/3 S&D, MM, and PP modules development. Lead functional activity of team engaged in development, implementation, and support of SAP R/3 S&D, MM, and PP modules over a full life-cycle using ABAP/4. 40 hrs./wk. 8:00-5:00. Apply with resume to LaWanda White, Delphi Corporation, 5825 Delphi Drive, Troy, Michigan 48098. EOE. Reference #0725 when applying.

Systems Analyst: Analyze, design, develop, test, implem & support Metaphase 3.1 & Other PDM packages, manufacturing planning & production systems, engg automation systems. Develop interfaces, customize modules, performance improvements, create business objects, prepare documentation. Envir: Oracle 7.3, C, C++, SQL, SQR. BS in Comp Sci, Comp Engg, Mech Engg or Electronics or Electrical Engg w/2 yrs exp in job offered or as Programmer Analyst/Systems Consultant. Degree may be equiv. 40 hrs/wk, 8am-5pm, $64,500/yr. Send resumes to Reference No. 202913, MDCD/ESA, PO Box 11170, Detroit, MI 48202. Employer Paid Ad.

Positions opening for Java Programmers, Internet/Web Programmers, Database/Oracle Programmers, Capstone Consultants & Network Engineers/Administrators. Database Admin/Programmers: must have B.S. C/S or Engg. or Electronics Engg. & 2 yrs. exp. in SQL Navigator, Forte, Vista, HP-Unix 11i, Oracle 8i, SQL*NET, PVCS Version Manager. Capstone Consultant: must have B.S. or Assoc. Degree in C/S or Engg. or Chem. with min. 6 months professional training in C/S or C/A & 2 yrs. exp. in HNC Capstone, Matlab, Mathcad, Labview, Mini-tab, Borland Turbo C++, Object Manager, HP Unix. Java Programmers: must have B.S. in C/S or Engg. (any branch) & 2 yrs. exp. in Java, JSP, EJB, HP-Unix v, Borland Turbo C++, Object Manager. Network Engineers/Administrators: must have B.S or Assoc. Degree in C/S or Engg. (any branch) or Math with min. 6 months professional training in C/S or C/A & 2 yrs. exp. Resumes only to HR, American Cybersystems, Inc., 100 Crescent Center Pkwy., Ste. 290, Tucker, GA 30084

TECHNICAL SERVICES MANAGER to perform detailed study and analysis of business processes of client companies to recommend IT-based BPR strategies for optimizing efficiency. Develop functional specifications of sales applications for planning control and MIS. Establish work plan, staffing needs, arrange technical recruiting and assignment of personnel for BPR and software development projects utilizing technical background in BPR, as well as C++, Java, J2EE, Jdeveloper, XML, WebLogic, WebSphere, Tomcat, Oracle, Visual Basic.net, ASP.net, ADO.net with SQL Server Database on UNIX operating system. Require: M.S. degree in Computer Science, Business Administration /Management, or a closely related field, with two years of experience in the job offered. Extensive travel on assignments to various client sites within the U.S. is required. Competitive salary offered. Send resume to: Shri Gangal, Syspro Technologies, Inc. 3091 Holcomb Bridge Rd., Suite H2, Norcross, GA 30071. Attn: Job SS.

Calif. based IT co. has openings at its Torrance office and unanticipated client sites across the US for Programmer/Analysts, Software Engineers and Business Development Consultants. Send resume with salary history and requirements to RJT Compuquest, 23430 Hawthorne Blvd., #305, Torrance, CA 90505 Attn: Suzanne

Next Generation Professionals are hiring all levels of Oracle Application DBAs and other IT Professionals. Senior Level Oracle Application DBAs' require Masters/equiv and 3 yrs of exp or Bach/equiv and 6 yrs exp. Job location: Tustin, CA, but may be placed at client sites nationwide. Send resumes to Next Generation Professionals, 10 Valenta, Irvine, CA 92602.

IT CAREER OPPORTUNITIES

CSC has the following positions available in Massachusetts:

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CSC

Multiple positions for IT professionals with min. 2 yrs. industry exp. in (a) or (b) or (c) or (d) or (e) or (f): (a) Oracle Applications 11i, FoxPro, Pro*C, SQR, Linux; (b) VAX/VMS, Citrix, T-SQL, PWS, Site Server, Unix, MTS, SQR; (c) ULTRA2 SCSI, Citrix Metaframe, Cluster Aware SQL 2000, Linux Security Software, Prism; (d) Logical Data Modeling & Value Analysis, Sun Solaris, CRM, Oracle Applications, Oracle Express, SCO Unix; (e) Seagate, XSLT, DTD, DOM, SDLC, MTS 2.0; (f) XSLT, XSL, Duration, MTS, Cold Fusion, VSS, COM+. MS or BS or equiv. CS or Engg. (any branch) or Math reqd. Foreign educ. equiv. accepted. Travel/relocation essential. Please send resumes to 1955 Cliff Valley Way, Suite 235A, Atlanta, GA 30329

SOFTWARE ENGINEER to design, develop, customize, implement and test software, databases, and web-based applications using VB, C/C++, COM/COM+, SQL, XML, SQL Server, Access, ASP, VB Script and Java Script under Windows 2000/NT/XP operating systems. Require M.S. degree in Computer/Information Science or a closely related field with two years of experience in the job offered. Competitive salary offered. Apply by resume to: Tyler Clinch, Intellithought, 125 Broad Street, Kingsport, TN 37660; Attn: Job ZL.

Positions opening for IT Professionals who must have B.S. in C/S or Engg. (any branch) & 2 yrs. exp. using ERSI, TaskMAte, GIS, Unix SVR4, HP-UX, IRMX, VxWorks, C++, CORBA, etc. Foreign educ. euiv., accepted. Travel/relocation required. Ps. Send resume to Global Resources Management, Inc., 1510 Red Cliff Drive, Tampa, FL 33625.

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Wireless

tem was designed to help the agency and the California Highway Patrol monitor bridges and tunnels for potential security problems. The cameras are being deployed to "watch for anyone who should not be there," Bayol said.

He added that Caltrans chose wireless links instead of fiber-optic cable because of cost issues and the vast distances that the network needs to span in order to reach all the bridges and tunnels.

David Brown, a division manager at Sacramento, Calif.-based Royal Electric Co., the prime contractor on the BASE project, agreed that cost was a decisive factor in prompting Caltrans to opt for wireless links.

In an unrelated project, Royal Electric recently installed a 3-mile fiber link across one Bay area bridge at a cost of about $3 million, Brown said. He estimated that it would cost $30 million to $40 million just to put fiber-optic cables on all the bridges and tunnels that will be covered by the BASE wireless system.

Layers of Complexity

Open Computing Platforms Inc. in Moorpark, Calif., handled the wireless systems integration work for Caltrans. CEO Steve Williams described the BASE project as one of the most complex that Open Computing has ever done.

The complexity resulted from factors such as the size of the network and the need to install numerous links that cross water, which can cause multipath distortion of wireless signals, Williams said. He added that the project also required extensive frequency coordination to ensure that there won't be any interference between the BASE signals and other wireless transmissions.

That process was further complicated by the fact that BASE uses a mix of licensed and unlicensed spectrum, with most of the wireless systems operating in the unlicensed 5-GHz band, Williams said.

Multiple levels of wireless security protections are being installed in an attempt to ensure that the BASE technology can't be penetrated by unauthorized users, he noted. The protections include the use of Triple Data Encryption Standard algorithms on the signals sent by the video cameras, as well as virtual LANs and the IPsec protocol to provide additional encryption and user authentication capabilities.

In addition, Williams said the Proxim-based wireless subscriber units that are being attached to the video cameras have built-in Global Positioning System receivers. The receivers broadcast the geographic coordinates of each wireless unit to Proxim-built base stations at the bridges. If a subscriber unit is moved, the base station won't accept signals from the new coordinates, he said.

Video camera images are transmitted via wireless links to the point-to-multipoint base stations, which in most cases are connected by Ethernet to point-to-point wireless transmitters that are also made by Proxim.

Ken Haase, director of product marketing at Proxim's WAN division, said the company's equipment operates in the same frequency band as 802.11a wireless LANs. But, he said, the Proxim technology uses proprietary protocols to help boost security and throughput levels. ▶

Continued from page 1

Homeland

utives from other companies in an effort to leverage the private sector's experience in managing enterprise mergers. But HP and Compaq "had six to nine months to do due diligence to investigate each other to see what they were getting their hands on," said Shepherd, who is director of information integration. "Then they had a full year with a transition team of 1,000 of the best people working full time to stand it up," he noted.

In contrast, the homeland security bill "was passed at the end of November, and the headquarters will be operational by the end of February. That's 90 days," said Shepherd. "This is going to be an evolutionary process. It's going to be continuous," he explained, adding that the enterprise architecture being studied as the basis of the nationwide homeland security effort "is never complete."

As a result, the White House is taking a phased approach that consists of several near-term projects, such as consolidating terrorism watch lists, developing an integrated e-mail and directory system, installing a secure videoconferencing infrastructure and expanding secure network connectivity.

However, there are many other immediate challenges facing the new department that make the HP/Compaq merger look like a handshake agreement between two mom-and-pop shops.

For example, there are now more than 22 human resources systems within the 22 federal agencies that will become part of the new department, said Shepherd. In addition, dozens of databases from law enforcement and intelligence agencies, the U.S. Customs Service and the biomedical and health community "are not mutually accessible," he said.

Ira Winkler, chief security strategist at HP, said the government is likely not looking at the HP/Compaq merger from a security perspective, but rather is focusing on how to reduce redundancies and streamline staffing.

"In the case of HP and Compaq, we had duplication of effort, which was the big thing

[redacted]

that Wall Street was watching," said Winkler.

But the more formidable challenge remains the potential clashes that could occur between the "22 distinct cultures" that must come together to form the headquarters, said Shepherd. "We need to make all of these people in the shortest possible time frame feel that they are integral parts of the new department," he said.

Given these and other challenges, a nationwide homeland security information-sharing capability that encompasses federal, state and local governments plus the private sector could take as little as a couple of years to complete "or as long as never," said Steven Aftergood, an analyst at the Federation of American Scientists in Washington.

"The technological, procedural and security obstacles can all be overcome in a reasonable period of time," he said. "But as long as individual agencies feel they are in competition with one another for budget dollars, official favor or public esteem, there will be a temptation to hoard information or to disclose selectively."

And the challenges could get even more sticky and require several rounds of new legislation from Congress to solidify the agency's role, said John Woodward, a former CIA officer who is now a senior policy analyst at Rand, a think tank in Arlington, Va. For example, the new department will absorb 17 labor unions, 15 pay systems that are different from the standard civil service system, and at least 10 distinct hiring systems, Woodward said. "The implementation of the new department will be an extremely complex task and will ultimately take years to achieve," he said.

And while studying the HP/Compaq merger is a good idea, no amount of preparation guarantees success, said Mark Lobel, a senior analyst at PricewaterhouseCoopers. "We will have a functional structure and hopefully better integration and information-sharing by March 1," said Lobel. "But I know from watching very large corporate mergers that some of them take years to realize the full benefits." ▶

Correction

In our Dec. 2 "Cool Stuff" feature, the hard-disk capacity options for the Apple iPod were misstated. The iPod is available in 5GB, 10GB and 20GB versions.

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Continued from page 1

Wireless

tem was designed to help the agency and the California Highway Patrol monitor bridges and tunnels for potential security problems. The cameras are being deployed to "watch for anyone who should not be there," Bayol said.

He added that Caltrans chose wireless links instead of fiber-optic cable because of cost issues and the vast distances that the network needs to span in order to reach all the bridges and tunnels.

David Brown, a division manager at Sacramento, Calif.-based Royal Electric Co., the prime contractor on the BASE project, agreed that cost was a decisive factor in prompting Caltrans to opt for wireless links.

In an unrelated project, Royal Electric recently installed a 3-mile fiber link across one Bay area bridge at a cost of about $3 million, Brown said. He estimated that it would cost $30 million to $40 million just to put fiber-optic cables on all the bridges and tunnels that will be covered by the BASE wireless system.

Layers of Complexity

Open Computing Platforms Inc. in Moorpark, Calif., handled the wireless systems integration work for Caltrans. CEO Steve Williams described the BASE project as one of the most complex that Open Computing has ever done.

The complexity resulted from factors such as the size of the network and the need to install numerous links that cross water, which can cause multipath distortion of wireless signals, Williams said. He added that the project also required extensive frequency coordination to ensure that there won't be any interference between the BASE signals and other wireless transmissions.

That process was further complicated by the fact that BASE uses a mix of licensed and unlicensed spectrum, with must of the wireless systems operating in the unlicensed 5-GHz band, Williams said.

Multiple levels of wireless security protections are being installed in an attempt to ensure that the BASE technology can't be penetrated by unauthorized users, he noted. The protections include the use of Triple Data Encryption Standard algorithms on the signals sent by the video cameras, as well as virtual LANs and the IPsec protocol to provide additional encryption and user authentication capabilities.

In addition, Williams said the Proxim-based wireless subscriber units that are being attached to the video cameras have built-in Global Positioning System receivers. The receivers broadcast the geographic coordinates of each wireless unit to Proxim-built base stations at the bridges. If a subscriber unit is moved, the base station won't accept signals from the new coordinates, he said.

Video camera images are transmitted via wireless links to the point-to-multipoint base stations, which in most cases are connected by Ethernet to point-to-point wireless transmitters that are also made by Proxim.

Ken Haase, director of product marketing at Proxim's WAN division, said the company's equipment operates in the same frequency band as 802.11a wireless LANs. But, he said, the Proxim technology uses proprietary protocols to help boost security and throughput levels. ◆

Continued from page 1

Homeland

utives from other companies in an effort to leverage the private sector's experience in managing enterprise mergers. But HP and Compaq "had six to nine months to do due diligence to investigate each other to see what they were getting their hands on," said Shepherd, who is director of information integration. "Then they had a full year with a transition team of 1,000 of the best people working full time to stand it up," he noted.

In contrast, the homeland security bill "was passed at the end of November, and the headquarters will be operational by the end of February. That's 90 days," said Shepherd. "This is going to be an evolutionary process. It's going to be continuous," he explained, adding that the enterprise architecture being studied as the basis of the nationwide homeland security effort "is never complete."

As a result, the White House is taking a phased approach that consists of several near-term projects, such as consolidating terrorism watch lists, developing an integrated e-mail and directory system, installing a secure videoconferencing infrastructure and expanding secure network connectivity.

However, there are many other immediate challenges facing the new department that make the HP/Compaq merger look like a handshake agreement between two mom-and-pop shops.

For example, there are now more than 22 human resources systems within the 22 federal agencies that will become part of the new department, said Shepherd. In addition, dozens of databases from law enforcement and intelligence agencies, the U.S. Customs Service and the biomedical and health community "are not mutually accessible," he said.

Ira Winkler, chief security strategist at HP, said the government is likely not looking at the HP/Compaq merger from a security perspective, but rather is focusing on how to reduce redundancies and streamline staffing.

"In the case of HP and Compaq, we had duplication of effort, which was the big thing that Wall Street was watching," said Winkler.

But the more formidable challenge remains the potential clashes that could occur between the "22 distinct cultures" that must come together to form the headquarters, said Shepherd. "We need to make all of these people in the shortest possible time frame feel that they are integral parts of the new department," he said.

Given these and other challenges, a nationwide homeland security information-sharing capability that encompasses federal, state and local governments plus the private sector could take as little as a couple of years to complete "or as long as never," said Steven Aftergood, an analyst at the Federation of American Scientists in Washington.

"The technological, procedural and security obstacles can all be overcome in a reasonable period of time," he said. "But as long as individual agencies feel they are in competition with one another for budget dollars, official favor or public esteem, there will be a temptation to hoard information or to disclose selectively."

And the challenges could get even more sticky and require several rounds of new legislation from Congress to solidify the agency's role, said John Woodward, a former CIA officer who is now a senior policy analyst at Rand, a think tank in Arlington, Va. For example, the new department will absorb 17 labor unions, 15 pay systems that are different from the standard civil service system, and at least 10 distinct hiring systems, Woodward said. "The implementation of the new department will be an extremely complex task and will ultimately take years to achieve," he said.

And while studying the HP/Compaq merger is a good idea, no amount of preparation guarantees success, said Mark Lobel, a senior analyst at PricewaterhouseCoopers. "We will have a functional structure and hopefully better integration and information-sharing by March 1," said Lobel. "But I know from watching very large corporate mergers that some of them take years to realize the full benefits." ◆

Merger Comparison

HP/COMPAQ (2001-02)

- Announced Sept. 3, 2001
- 18-month transition
- 140,000 employees
- Two primary headquarters
- Four operating units
- Operating income: $3.9B

DEPARTMENT OF HOMELAND SECURITY (2003)

- Bill passed Nov. 25, 2002
- Headquarters to be established March 1, 2003
- 170,000 employees
- 22 federal agencies
- Budget: Approximately $37B
- Will eventually connect all state and local governments, emergency responders and health care organizations

Correction

IN OUR DEC. 2 "Cool Stuff" feature, the hard-disk capacity options for the Apple iPod were misstated. The iPod is available in 5GB, 10GB and 20GB versions.

[illegible]

FRANK HAYES ▪ FRANKLY SPEAKING

Better to Give . . .

"CHIEF, WE'VE GOT A PROBLEM," called the elf pushing the cart stacked high with brightly wrapped packages. Santa put down his pen, pushed his glasses up on his forehead and sat back in his chair. It's been nothing but problems this year, he thought. That new inventory management system is working fine, but certain elves really shouldn't have been given the ability to stock up on toys with just a single click.

Now every passing fad has left the North Pole workshop awash in action figures. First, Gunther had put in a big order for Spider-Man toys when that movie came out. But now it was passé. "Then be loaded up on Jar Jar Binks dolls," Santa grumbled aloud. "Even *I* knew that one was played out years ago."

"Gunther's at it again," said the elf, parking the cart. "He decided to kill the order for Harry Potter figures. Which reminds me, are you done with the gift list for all the IT wizards?"

"Not yet," said Santa. "What do I get for Bill Gates? That's my biggest headache every year."

"Give him two Tablets and tell him not to call you in the morning," cracked the elf. "Aw, don't give me that pained look, big guy. How about a TiVo? It looks like Microsoft's new antitrust trial with Judge Frederick Motz is gonna be a replay of the one with Thomas Penfield Jackson, and that way, Gates can watch history repeat itself. Anyone else giving you trouble?"

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"Give him a life preserver — he got voted off the yacht, remember?" said the elf. "And once they replaced him with a professional sailor, they won 11 straight races. Who else?"

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FRANK HAYES, *Computerworld's* senior news columnist, has covered IT for more than 20 years. Contact him at frank_hayes@computerworld.com.

But It *Is* Really Efficient!

This big-deal R&D lab has a sequence of mainframe jobs that are just taking too long, so management calls in consultant pilot fish and his partner to speed them up — no matter what it takes. "The system passed data from one step to the next, and at each step, the data was sorted using a very efficient algorithm that nevertheless added hours to the overall job," says fish. "After an hour of careful listening, we presented our solution, which easily cost us tens of thousands in consulting fees: Stop sorting the tapes. After each of the five steps, the data was resorted to the same order!"

SHARK TANK

Penny-Wise

Cost-cutter tells contractor pilot fish and his cohorts that phone bills are too high. From now on, he says, they should spend 30 minutes each month reviewing their phone bills and then pay for personal calls. Net result? "Average monthly payment for personal calls: $8. Average cost of a half-hour of consulting time: $50," fish grumbles. "And the bean counter was promoted for reducing phone expenses."

See, It Worked!

IT manager pilot fish is pushing for promotions for two first-rate entry-level programmers, but his boss says it can't happen — yet. "I have to wait until some other people leave the company," VP tells fish. "That way, I can do a 'replacement promotion,' which won't count against my budget." Sighs fish, "Well, two people *did* leave — the two people I was trying to promote."

Just Use Your Imagination

Consultant pilot fish is on a team deploying new management software globally. "The client is ISO 9000-certified and going for renewal, so everything needs to be documented in painstaking detail," fish says. "The client demands the procedural documentation before the ISO audit and isn't willing to implement the tool until after the documentation is created. But we don't actually *have* the software yet — which makes writing ISO documentation hard."

Safety First

Financial institution tightens up its privacy policy, so now customer data is password-protected using 128-bit encryption, including all such files on the secure network or sent via e-mail. "The only exception is when large amounts of data are written to CD. Then it's not encrypted at all," reports security-conscious pilot fish. "That's right: The data on the secured network must be encrypted, but the same text file going through snail mail on a CD doesn't have to be."

FEED THE SHARK! Send your true tale of IT life to sharky@computerworld.com. You snag a snazzy Shark shirt if we use it. And check out the daily feed, browse the Sharkives and sign up for Shark Tank home delivery at computerworld.com/sharky.

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